A Preliminary Assessment

of

EPA No. DE-115

Camdel Metals

PA/SI Cooperative Agreement Grant No. V-003350-01-0

Presented to: Harold G. Byer, Acting Chief

Site Investigation and Support Section

U.S. EPA Region III

Laura Boornazian, State Project Officer

Prepared by: Delaware Department of Natural Resources

and Environmental Control

Air and Waste Management Section

Brad L. Smith , PA/SI Investigator Eileen M. Hack, PA/SI Coordinator

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ORIGINAL (Red)



I. Introduction .



Inquiry Source

EPA Region III Site Investigation Officer.

General Summary

Camdel Metals (subsidiary of Handy Harman Corporation) is located in the Vernon E. Pike Industrial Park on Route 10. Camden. Kent County, Delaware. The site consists of a plant which produces small diameter stainless steel and other specialty tubing. The plant has been in operation since July, 1981.

The process requires the use of drawing lubricants. These lubricants are cleaned off after processing with solvents, principally tricholoroethylene (TCE), which is used in a degreaser unit.

After the plant had been in operation for one year monitoring wells were sampled by plant personnel. A composite sample taken from the seven wells showed 160 parts per billion (PPB) of TCE present in the sample. Handy and Harman then hired a consultant, SMC Martin Incorporated, to investigate the TCE contamination.

In order to better define the hydrogeology and to further augment data obtained from the original seven monitoring wells, SMC Martin installed five new wells (wells 14-18). Sample analysis indicated that levels of TCE in the original seven wells were less than the 160 ppb determined previously. Additionally, there was no contamination in the five new wells, suggesting there was no offsite migration of contaminants.

On October 17-18, 1983 Delaware Department of Natural Resources and Environmental Control (DE DNREC) sampled all monitoring wells at the site and found TCE and other synthetic organics in the original seven monitoring wells. At this point Michael A. Apgar (DE DNREC) recommended a long term monitoring program. 2



In response, SMC Martin proposed sampling wells 7 and 17 quarterly and wells and 14, 15, and 16 annually for a period of 2 years (April 1984 to April 1986).³ Michael Appar reviewed this ground water sampling plan and suggested; (1) well number four should be sampled, and (2) water levels should be monitored at all the wells at sample collection. The initial sampling round was conducted by SMC Martin on April 13, 1984.⁵

On October 15, 1984, approximately 75 gallons of TCE were spilled onto the plant floor after a pipe providing TCE to the degreasing unit broke. Approximately 10 to 15 gallons TCE reached the soil outside the plant. Soil sampling in the contaminated area was conducted on October 16, 1984 by SMC Martin. Samples were analyzed by the Draegar tube method. This analysis, in conjunction with monitoring well #6 sample results (4900 ppb of TCE) suggested that TCE had reached the groundwater.

SMC recommended the following:

- 1. Remove and aerate contaminated soil
- Evaluate the integrity of well number six to be certain that the TCE didn't leak down the well casing.
- 3. Install a recovery well in the spill area.
- 4. Perform soil and water sampling to verify the effectiveness of the above remedial measures.

SMC treated approximately 200 yds.³ of contaminated soil with a soil shredder. A soil shredder shreds the contaminated soil and throws it 20 and 30 feet through the air, reducing moisture content and maximizing volatilization of TCE. Two samples were obtained from each pass through the shredder. The shredding operation reduced the concentration of TCE from approximately 70 ppb to 23.5 ppb.⁷

Delaware DNREC granted SMC Martin Inc. permission on 9/19/85 to spread the shredded soil on land adjacent to the plant. 8 This action will take place in early December, 1985.

A recovery well (RS-1) was installed in the immediate spill area in an attempt to recover any possible contamination that may have migrated from the spill area. It was estimated that an extraction volume of approximately 302,400 gallons would be necessary to recover a possible contamination plume. The extracted water should be discharged into the nearby stormwater retention basin. On April 2. 1985, DNREC gave SMC Martin, Inc. authorization for recovery and disposal of TCE cotaminated groundwater at Camdel Metals. The authorization included the following requirements.

- 1 the limitation on TCE concentration in storm water pond should be 100 ppb, (not 100 ppm as appeared in the letter),
- 2 contaminant recovery pumpage will be initiated at a rate of about 100 gpm. However, the pond has a capacity to receive only about an additional 500.000 gallons - about three days of pumpage,
- 3 TCE should be monitored at the well. as the water falls into the pond (by catching it in a bucket), and in the pond.
- 4 when the pond is filled, the contaminated water may be sprayirrigated onto the lawn subject to not exceeding the following TCE concentrations:
 - a 1 ppm to the recovery water
 - b 100 ppb landing on the soil
 - c 25 ppb in the ground water beneath the spray area
- 5 A 2-inch I. D. PVC monitor well will be installed in the spray area prior to spraying. Water levels and TCE monitoring will be initiated prior to any spraying and at least daily during the first week (sampling frequency may be stretched out thereafter contingent on results).

Recovery efforts were to continue until TCE concentrations in the recovery well were decreased to 25 ppb and the TCE concentrations in any monitoring well did not exceed 50 ppb. As of November 4, 1985, 14,424,600 gallons had been recovered and treated. Contaminated concentrations from the recovery well have remained below 40 ppb since August 30, 1985, and have continued to decline to a low of 17 ppb. Weekly sampling will continue until contaminant concentrations in the recovery well have stabilized at or below 25 ppb. 12.



A small spill was reported by plant personnel during the week of August 19, 1985. Plant personnel discovered the leak and quickly replaced the faulty condenser. Contaminant concentrations in the recovery will reflect this spill and its subsequent recovery.

Recommendations

Because of the monitoring and remedial action programs implemented by Camdel Metals and SMC Martin under the directive of Delaware DNREC. we recommend no further action under the PA/SI program.



II. Site History



Permits

None issued

Site Owner

Handy & Harman Tube Company Inc., Township & Whitehall Road , Route #3.

Norristown, PA 19401 (215) 538-3900.

Area Residents

None contacted

Media Coverage

None obtained

Enforcement Status

No record of any enforcement action was found in Delaware DNREC files.



III. Environmental Setting



Geology and Soils

The site is underlain by the Columbia Formation which is approximately 50 feet thick at the site. The Columbia Formation is underlain by the Cheaspeake group which is approximately 200 feet thick at the site.

The Cheasapeake Group contains Miocene sediments which consist of predominately gray bluish gray silt containing beds of gray, fine to medium grained sand, and some shell beds. The two main zones of sand in the Cheasapeake group are called the Cheswold aquifer and the Frederica aquifer. The Cheswold aquifer is at a depth of approximately 175 feet below the site and the Federica is at a depth of approximately 65 feet.

Below the Cheasapeake group is cretaceous sediment down to $\mbox{\it Crystalline}$ basement.

Soil at the site consists of Sassafras Sandy Loams. The Sassafras series consists of deep, well drained soils on wetlands. These soils are formed in very old, perdominately sandy sediments.

Ground Water

Depth to groundwater table ground water is approximately 7 and 9 feet. Normal water flow direction is to the northeast. 1

Surface Water

The nearest surface water is Newell Branch, which is located about 1/2 mile south of the site. Newell Branch empties into Tidbery Creek. Tidbery Creek empties into St. Jones River, which flows into the Delaware Bay.

Land Use

Land use for the area is light industrial, agricultural and residential.



Population Distribution

The site is located in Camden, Delaware. The town of Camden has a 16 population of 1757.

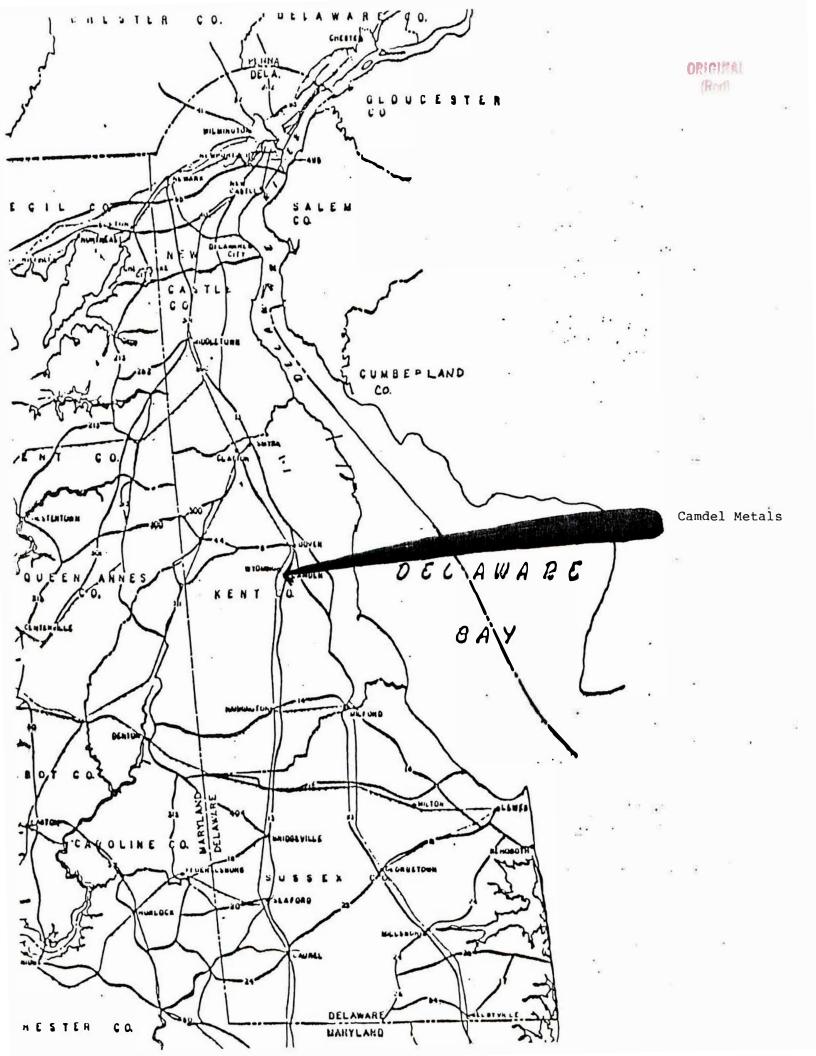
Water Supply

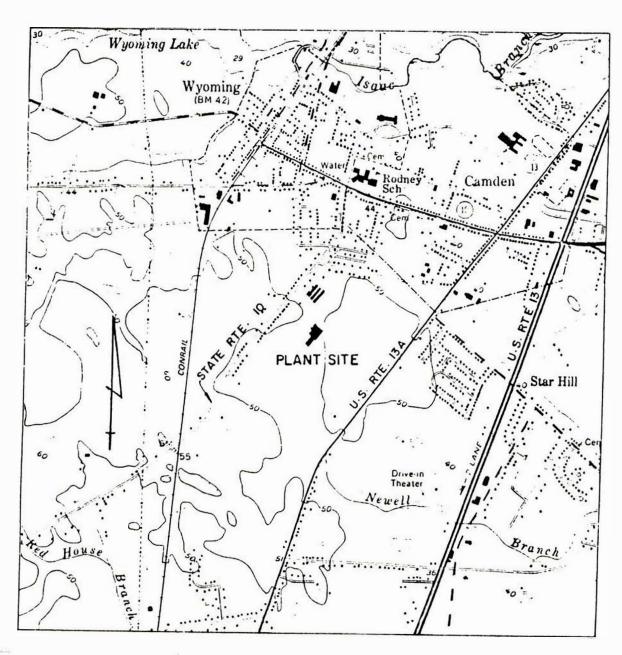
Water supply within the immediate area of the site (2,000 feet) is mostly domestic wells. The remaining residents are supplied by the town of Camden.

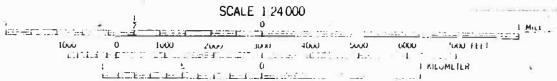
Critical Environments

There are no known critical environments within 3 miles of the site.

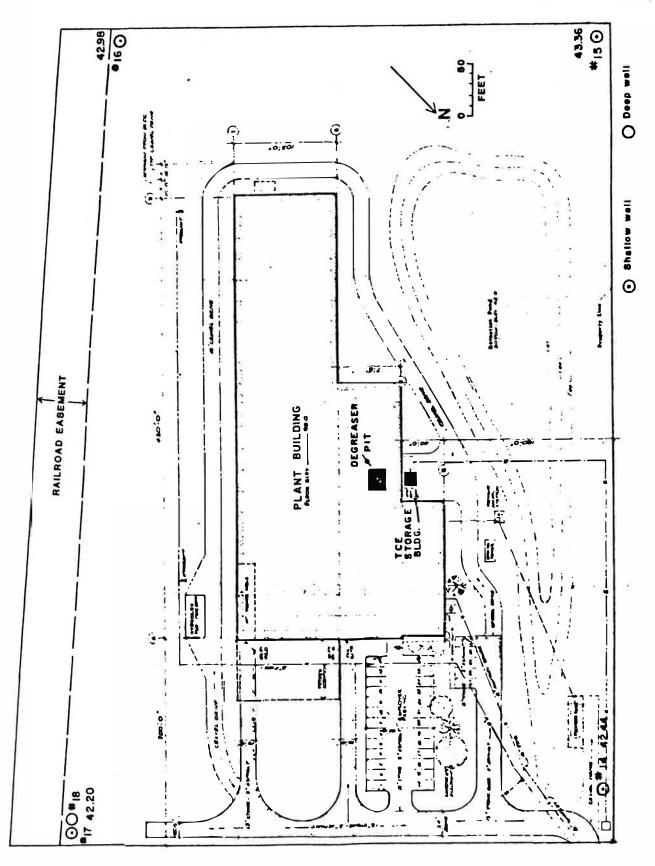
VI. Maps and Drawings



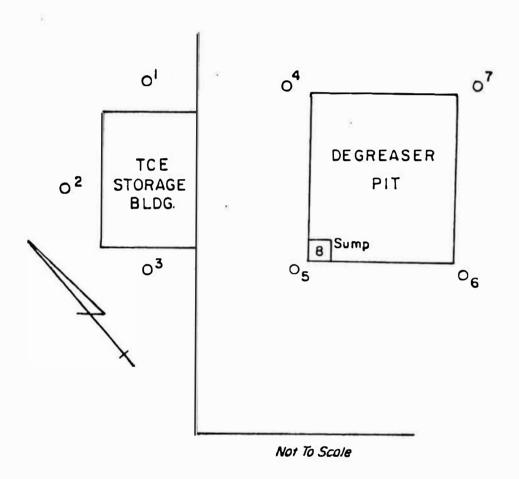




CONTOUR INTERVAL 10 FEET DATUM IS MEAN SEA LEVEL



Monitoring Wells 14-18



Location of Existing Wells 1-7



· IV. Preliminary Assessment Form

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POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT PART 1-SITE INFORMATION AND ASSESSMENT

I. IDENT	IFICATION	
	02 SITE NUMBER	
DE		

PART 1 - SITE INFORMATION AND ASSESSMENT					
	02 STREE	r. ROUTE NO., OR	SPECIFIC LOCATION	IDENTIFIER	
					rk Rt. 10
	DE DE	05 ZIP CODE 19934		nty	07COUNTY 08 CONG CODE 001
ITUDE					
k off of Rt	. 10	Camden De	elaware		
				ehall R	oad Rt. #3
	04 STATE	05 ZIP CODE	06 TELEPHONE	NUMBER	
	PA	19401	(215) 5:	39	3900
1	08 STREE	(Business, maing,	residential)		
	Ver	non E. P.	ike Indust	rial Pa	rk
	10 STATE		12 TELEPHONE	NUMBER	
	DE	19934	(302)	997	9521
		O C STAT		ПЕМП	NICIDAL
(Agency name)					
		_ UG, UNK	NOWN		
☐ B. UNCONTROLLE	DWAST	ESITE (CERCLA 10	DATE RECEIVE	ED: /	L C. NONE
PA 🗆 B. EPA			C. STATE	D. OTHER	CONTRACTOR
		I F. OTHER:		(Specify)	
	1981			□ UNKNOW	N
OR ALLEGED					
tected in s	oils	and grou	nd water		
OR POPULATION					_
Remedial action to date would nullify potential hazard to environment or population					
O1 PRIORITY FOR INSPECTION (Check one, if high or medium is checked, complete Part 2 · Weste information and Part 3 · Oes crokkon of Hetaldous Conditions and Incidents) A. HIGH B. MEDIUM C. LOW Inspection required promptly) (Inspection required promptly) (Inspection required) (Inspect on time evaluable basis) (No luther action necoed, complete current diaposition form)					
VI. INFORMATION AVAILABLE FROM					
					(b) (4)
DNREC					12 18,85 MONTH DAY YEAR
	(Agency name) (Agency name) (Agency name) (Agency name) (B. UNCONTROLLE (ACTOR NAME(S): O3 YEARS OF OPERA BE OR ALLEGED tected in So OR POPULATION nullify po (Interect on time e) SMC Martin O5 AGENCY	D2 STREET Ver 04 STATE DE SITUDE O2 STREET TOWN 04 STATE PA 08 STREET Ver 10 STATE DE (Agency name) O2 STREET TOWN 04 STATE PA 08 STREET Ver 10 STATE DE (Agency name) O3 HEALTH OFFICIAL (ACTOR NAME(S): 03 YEARS OF OPERATION ACTOR NAME(S): 03 YEARS OF OPERATION 1981 BEGINNING YEAR OR ALLEGED tected in soils OR POPULATION nullify potential (Inspect on Issue evaluable desiral (Inspect on Issue evaluable desiral O2 OF (Agency/Organization) SMC Martin Inc O5 AGENCY O6 ORGA	O2 STREET, ROUTE NO., OF Vernon E. P. O4 STATE O5 ZIP CODE 19934 SITUDE	O2 STREET, ROUTE NOOR SPECIFIC LOCATION Vernon E. Pine Indust: O4 STATE O5 ZIP CODE D6 COUNTY DE	O2 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Vernon E. Pine Industrial Pa

EPA FORM 2070-12 (7-81)



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POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT PART 2 - WASTE INFORMATION

I. IDENT	IFICATION	•	ż
01 STATE DE	02 SITE NUMBER		

	ATES, QUANTITIES, AN							
01 PHYSICAL ST	TATES (Check all that apply)	02 WASTE QUANTI	TY AT SITE	03 WASTE CHARACTERISTICS (Check all Inal apply)				
IJ A. SOLID	(3 E. SLURRY	musi oe	ndependent)	A TOXIC : SOLUBLE : I. HIGHLY VOLATILE B CORROSIVE : F. INFECTIOUS : J. EXPLOSIVE C RADIOACTIVE : G. FLAMMABLE : I. K. REACTIVE				
□ B. POWDER	R. FINES XI F. LIQUID	TONS _	207/yr	C. RADIOA	CTIVE G. FLAMM			
IJ C. SLUDGE	C G. GAS	CUBIC YARDS _		(.) D. PERSIST	TENT LI H. IGNITA	BLE L. INCOMP		
D. OTHER	(Specdy)	NO. OF DRUMS _				B M. NOT A	FEMALE	
III. WASTE T	YPE							
CATEGORY	SUBSTANCE N	AME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS			
SLU	SLUDGE							
OLW	OILY WASTE							
SOL	SOLVENTS							
PSD	PESTICIDES							
осс	OTHER ORGANIC CH	HEMICALS						
100	INORGANIC CHEMIC	ALS			ii.			
ACD	ACIDS							
BAS	BASES							
MES	HEAVY METALS						,	
	OUS SUBSTANCES (S.O.A.	Doendis for most treduent	N cited CAS Numbers	1				
01 CATEGORY	02 SUBSTANCE N		03 CAS NUMBER	04 STORAGE/DISF	POSAL METHOD	05 CONCENTRATION	08 MEASURE OF CONCENTRATION	
D002	corrosive sol	id		storage in	tanks		CONCENTRATION	
F001	spent halogan		nts	storage in				
F002	II II	"	1	II II	n			
				1				
				!				
			1					
			i	1				
						<u> </u>		
				, 2				
V. FEEDSTO	CKS (See Appendix for CAS Numb	ers)				-	•	
CATEGORY	01 FEEDSTOC	K NAME	02 CAS NUMBER	CATEGORY	O1 FEEDSTO	OCK NAME	02 CAS NUMBER	
FDS				FDS				
FDS				FDS				
FDS				FDS				
FDS				FDS				
VI. SOURCES	OF INFORMATION ICHO	speculic references, e.g.,	state tres, sample analysis,	reports)				
	e DNREC files				e activity	file		



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POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

I. IDENT	TIFICATION
01 STATE	02 SITE NUMBER
DE	

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS						
II. HAZARDOUS CONDITIONS AND INCIDENTS						
01% A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: 1,700 +-	02(ROBSERVED (DATE: 1982) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	XXALLEGED			
01 DB. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: N/A	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED			
01 C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED:	02 OBSERVED(DATE) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	☐ ALLEGED			
N/A						
01 D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED:	02 OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED			
N/A						
01 ☐ E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED:	02 DOSERVED (DATE:) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED			
n/A						
01 12 F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: (Acres)	02 □ OBSERVED (DATE 10/15/84 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	XXALLEGED			
01XXG, DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: 25	02 🗆 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	XXPOTENTIAL	☐ ALLEGED			
Domestic wells within 1,000 fee	t					
01 H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED:	02 OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	☐ ALLEGED			
N/A						
01 I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED:	02 [] OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED			
N/A						



POTENTIAL HAZARDOUS WASTE SITE

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

	IARY ASSESSMENT ZARDOUS CONDITIONS AND INCIDENTS	DE	one nonear
II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)	EARDOGG GONDITIONS AND INCIDENT.		
01 D J. DAMAGE TO FLORA 04 NARRATIVE DESCRIPTION	02 D OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A			
01 K. DAMAGE TO FAUNA 04 NARRATIVE DESCRIPTION (Include name(s) of species)	02 🗆 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A			
01 L. CONTAMINATION OF FOOD CHAIN 04 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A	3		
01 M. UNSTABLE CONTAINMENT OF WASTES	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
(Spats/nunoll/slanding liquids/leaking drums) 03 POPULATION POTENTIALLY AFFECTED:	04 NARRATIVE DESCRIPTION		
N/A			
01 □ N. DAMAGE TO OFFSITE PROPERTY 04 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A			
01 □ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 04 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A			
01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 04 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	□ POTENTIAL	☐ ALLEGED
N/A			
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEC	GED HAZARDS		
III. TOTAL POPULATION POTENTIALLY AFFECTED:	700_+=		
IV. COMMENTS			
		*	
V. SOURCES OF INFORMATION (Cite specific relarances, e.g., state files, s	ample analysis, (eports)		
DE DNREC "Hazardous WAste" and	"Water Supply" files.		

VIII. References



References

- 1. "Investigation of TCE contamination at Camdel Metals Corporation" SMC Martin Inc., 900 West Valley Forge Road, P.O. Box 859, Valley Forge PA 19482, June, 1983. Hazardous Waste file DE DNREC.
- 2. Letter, Michael A. Apgar, DE DNREC to Robert M. Zimmerman, Handy Harman Inc. 12/6/83. Hazardous Waste file, DE DNREC.
- 3. Letter, Donald R. Price, SMC Martin to Robert M. Zimmerman, Handy Harman Co. Water Supply File DE DNREC.
- 4. Letter, Michael A. Apgar, DE DNREC to Robert M. Zimmerman, 4/11/84. Water Supply files DE DNREC.
- 5. Letter, Donald R. Price, SMC Martin to Michael A. Apgar, DE DNREC. Water Supply files, DE DNREC 5/17/85.
- 6. Letter, Steve Johnson, SMC Martin to Mike A. Apgar ,DE DNREC 11/2/84. Hazardpis Waste files, DE DNREC.
- 7. Letter, Thomas R. Walsh, Camdel Metals to George Bender, DE DNREC, 2/1/85.
- 8. Letter, Robert J. Touhey. DE DNREC, to Wayne Naylor, U.S. EPA, 9/19/85.
- 9. Letter, Steve Johnson, SMC Martin to George Bender, DE DNREC 2/1/85. Hazardous Waste files DE DNREC. 4/2/85.
- 11. Letter Michael A. Apgar, DE DNREC to Steve Johnson, SMC Martin 8/2/85.
- 12. Telecon, Steve Johnson, SMC Martin Inc., 11/22/85
- 13. Letter Steve Johnson, SMC Martin to Mike Appar, DE DNREC, 11/15/85. Water Supply files, DE DNREC.
- 14. The Availability of Ground Water, Kent County Delaware, R. W. Sundstrom. T. E. Pickett, Newark, Delaware 1968.
- 15. Soil Survey, Kent County , Delaware, U.S.D.A., 1971.
- 16. 1980, Census.

IX. Appendix I

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-888-7295

TO:

b) (4)

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b)

Ph.D.

DATE:

November 6, 1985

GREENWOOD NO. GL 6802

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6802-1 thru -4: Camdel Metals Corp. (listed below).

SUMMARY:

These samples were examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6802-	Sample Identity	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1 11/4/85	ا/وبر 17	0	0	ا/وسر 1.7
2	Pond "	ا/وپر 5.8	0	0	0
3	Spray "	ا/وبر 1۔	0	0	0.2 µg/L
4	MW-19 "	0	0	0	0

(b) (4)

GRU: del

(b) (4

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

RENNETT SQUARE. PA. 19348 PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

b) (4)

Ph.D.

DATE:

October 30, 1985

GREENWOOD NO. GL 6794

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6794-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

GL # 6794-	Sampl	e Identit <u>y</u>	C ₂ HCl ₃	сн ₃ сс1 ₃	CHC1 ₃	C ₂ Cl ₄
1	Ground Spray	10/28/85	2.4 ug/L	0	0	0.2 ug/L
2	RW-1	H .	31 ug/L	0	0	1.6 ug/L
3	Pond	n	1.8 ug/L	0	0	0
4	MW-19	11	0	0	0	0





ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-386-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

b) (4)

DATE:

October 24, 1985

GREENWOOD NO. GL 6786

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6786-1 thru -4: Camdel Metals Corporation.

Ph.d.

SUMMARY:

These samples have been examined by gas chromatography using the preivously described procedure. The analytical results are as follows:

GL # 6786-	Sample Identity	C2HC13	CH ₃ CC1 ₃	CHC1 ₃	C ₂ C1 ₄
1	Ground Spray 10/21/85	3.1 ug/L	0	0	0
2	RW-1 10/21/85	37 ug/L	0	0	1.9 ug/L
3	MW-19 "	0	0	0	0
4	Pond "	0	0	0	0

GREENWOOD LABORATORIES



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-356-7295

TO:

SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

Ph.D.

DATE:

October 14, 1985

GREENWOOD NO. GL 6770

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6770-1 thru -4: Camdel Metals Corporation

SUMMARY:

GL # 6770-	Sa	ample Identity	C2HC13	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
í	10/11/85	R w - 1	34 ug/L	0	0	2.2 ug/L
2	H	Pond	1.8 ug/L	0	0	0
3	н	Lawn Spray	4.9 ug/L	0	0	0.2 ug/L
4	n	MW-19	0	0	0	0

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19346 PHONE: 215-386-7295

TO:

(b) (4)

SMC MARTIN
P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

October 8, 1985

GREENWOOD NO. GL 6765

SUBJECT:

Examination of water samples for trichloroethylene and related

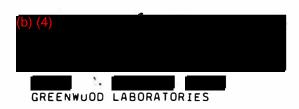
compounds.

SAMPLES:

GL 6765-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

GL # <u>6765</u> -	San	nple Identity	C ₂ HC1 ₃	CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	RW-1	10/4/85	35 ug/L	0	0	1.8 ug/L
2	Pond	11	6.3 ug/L	0	0	0
3	Field Spray	, "	3.4 ug/L	0	0	0.2 ug/L
4	MW-19	И	0	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: 215-388-7295

TO:

(<mark>b)(4)</mark> SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

September 19, 1985

GREENWOOD NO. GL 6750

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6750-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6750-	/- <u></u>	Sample Identity	C2HC13	CH3CC13	CHC1 ₃	C ₂ Cl ₄
1	9/19/85	Pond	0	0	0	0
2	н	Ground Spray	4.5 ug/L	0	0	0.3 ug/L
3	11	MW-19	0	0	0	0
4	**	RW-1	39 ug/L	0	0	1.8 ug/L





ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(4)

,Ph.D.

DATE:

September 17, 1985

GREENWOOD NO. GL 6743

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6743-1 thru -4: Camdel Metals Corporation

SUMMARY:

GL # 6743-		Sample Identity		CH3CC13	_CHC1 ₃ _	C ₂ C1 ₄
1	9/13/85	RW-1	39 ug/L	0	0	2.0 ug/L
2		MW-19	0	0	0	0
3	ti	Pond	0	0	0	0
4	# #	Spray Field	4.1 ug/L	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

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DATE:

September 10, 1985

GREENWOOD NO. GL 6740

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6740-1 thru -3: Camdel Metals Corporation

SUMMARY:

GL # 6740-		Sample Identity	^C 2 ^{HC1} 3	CH ₃ CC1 ₃	CHC1 ₃	C ₂ C1 ₄
1	9/6/85	R W - 1	30 ug/L	0	0	0.3 ug/L
2	•	Pond	0	0	0	0
3	11	Ground Spray	3.8 ug/L	0	0	0



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, Ph.d.

DATE:

September 2, 1985

GREENWOOD NO. GL 6731

SUBJECT: Examination of water samples for trichloroethylene and related compounds.

SAMPLES: GL 6731-1 thru -6: Camdel Metals Corporation

SUMMARY:

GL # 6731-	-	Sample IDentity	C ₂ HCl ₃	CH ₃ CC1 ₃	CHC13	^c 2 ^{c1} 4
1	8/30/85	RW-1	34 ug/L	0	0	1.8 ug/L
2	и	Ground Spray	2.7 ug/L	0	0	0
3	н	Pond	0	0	0	0
4		MW-19	0	0	0	0
5	**	MW-5	7.2 ug/L	0	0	0
6	H	MW-6	4.8 ug/L	0(•	





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19482

FROM:

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, Ph.D.

DATE:

August 26, 1985

GREENWOOD NO. GL 6726

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6726-1 thru -4: Camdel Metals (listed below)

SUMMARY:

GL # 6726-	Sampl	e Identit <u>y</u>	C ₂ HCl ₃	СН ₃ СС1 ₃	CHC1 ₃	C ₂ C1 ₄
1	RW-1	8/23/85	170 ug/L	0	0	1.8 ug/L
2	Ground Spray	n	2.9 ug/L	0	0	0
3	Pond	H	4.5 ug/L	0	0	0
4	MW-19	11	0	0	0	0





ANALYTICAL CHEMISTS AND CONSULTANTS

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FROM:

o) (4)

, Ph.D.

DATE:

August 22, 1985

GREENWOOD NO. GL 6723

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6723-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6723-	Sample Identity		C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
ī	RW-1	8/16/85	44 ug/L	0	0	2.3 ug/L
2	Ground Spray	11	4.6 ug/L	0	0	0
3	Pond	**	0	0	0	0
4	MW-19	Ħ	0	0	0	0



GREF*'WOOD LABORATORIES



ANALYTICAL CHEMISTS AND CONSULTANTS

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FROM:

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GREENWOOD NO. GL 6713

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6713-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatogrpahy using the previously desscribed procedure. The analytical results are as follows:

GL # 6713~	Sampl	e Identity	C2HC13	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	8/9/8	46 ug/L	0	0	2.5 ug/L
2	Ground Spray	п	0	0	0	0
3	Pond	n	7.1 ug/L	0	0	0
4	MW-19	н	q b	_	•	•
) (4)	REENWOOD LAB	DRATORIES	



ANALYTICAL CHEMISTS AND CONSULTANTS

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FROM:

b) (4) , Ph.D.

DATE:

August 8, 1985

GREENWOOD NO. GL 6710

SUBJECT:

Examination of water samples for trichloroethylene and related compounds.

SAMPLES:

GL 6710-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6710	Sample Identity	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHCl ₃	^C 2 ^{Cl} 4
1	RW-1 8/6/85 12:15 pm 8/6/85	5 40 ug/L	0	0	1.9 ug/L
2	Ground Spray 12:18 pm "	0	0	0	0
3	Pond 12:10 pm "	0	0	0	0
4	MW-19 12:20 pm "	0	0	0	0

M. 11071 1 7



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Valley Forge, PA

19482

FROM:

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Ph.D.

DATE:

August 6, 1985

GREENWOOD NO. GL 6706

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6706-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6706-	Sample Identity		^C 2 ^{HC1} 3	CH ₃ CC1 ₃	CHC1 ₃	C ₂ C1 ₄		
1	RW-1	8713 8/2	/85 11:45	am	35 ug/L	0	0	2.2 ug/L
2	Spray	н	11:50	am	0	0	0	0
3	Pond	10 10	11:47	am	0	0	0	0
4	MW-19	n u	11:58	am	0	0	0	0

(b) (4)

GREENWOOD LABORATORIES

GRU: del

Copy: R.

(b) (4

Handy & Harman;



Camdel Metals Corp.



ANALYTICAL CHEMISTS AND CONSULTANTS

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TO:

SMC MARTIN P. O. Box 859

Valley Forge, PA 19482

FROM:

. Ph.D.

DATE:

August 1, 1985

GREENWOOD NO. GL 6705

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6705-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6705-		Sample Ide	entity		C ₂ HCl ₃	CH3CC13	CHC1 ₃	-C ₂ C1 ₄
1	Ground (F	Field Spray	7/30/85	11:18 am	19 ug/L	0	0	0
2	RW-1		H	11:06 am	37 ug/L	0	0	2.1 ug/L
3	Pond		#	11:11 am	0	0	0	0
4	MW-19		**	11:30 am	0	0	0	0



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TO:

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

July 30, 1985

GREENWOOD NO. GL 6702

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6702-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6702-	Sample Identity				C2HC13	CH3CC13	CHC13	^C 2 ^{C1} 4	
1	R-7/26	RW-1	7/26/85	10:24	am	32 ug/L	0	0	2.0 ug/L
2	FS-7/26	Field	SSpray	10:34	am	0	0	0	0
3	P07/26	Pond	7/26/85	10:30	am	0	0	0	0
4	MW-7/26	MW-19		10:48	am	0	0	0	0



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FROM:

) (4) , Ph.D.

DATE:

July 24, 1985

GREENWOOD NO. GL 6701

SUBJECT:

Examiantion of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6701-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These sampels have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6701~	Sample Identity	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	Pond 7/23/85	0	0	0	0
2	RW-1 "	37 ug/L	0	0	2.5 ug/L
3	MW-19 "	0	0	0	0
4	Ground Spray 7/23/85	4.0 ug/L	0	0	0

(b) (7)(C), (b) (4)



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TO:

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P. O. Box 859

Valley Forge, PA

19482

FROM:

Ph.D.

DATE:

July 22, 1985

GREENWOOD NO. GL 6690 & GL 6696

SUBJECT:

Examination of water samples for trichlornethylene and related

compounds.

SAMPLES:

GL 6690-1 thru -4

Camdel Metals, 7/16/85, listed below

GL 6696-1 thru -4

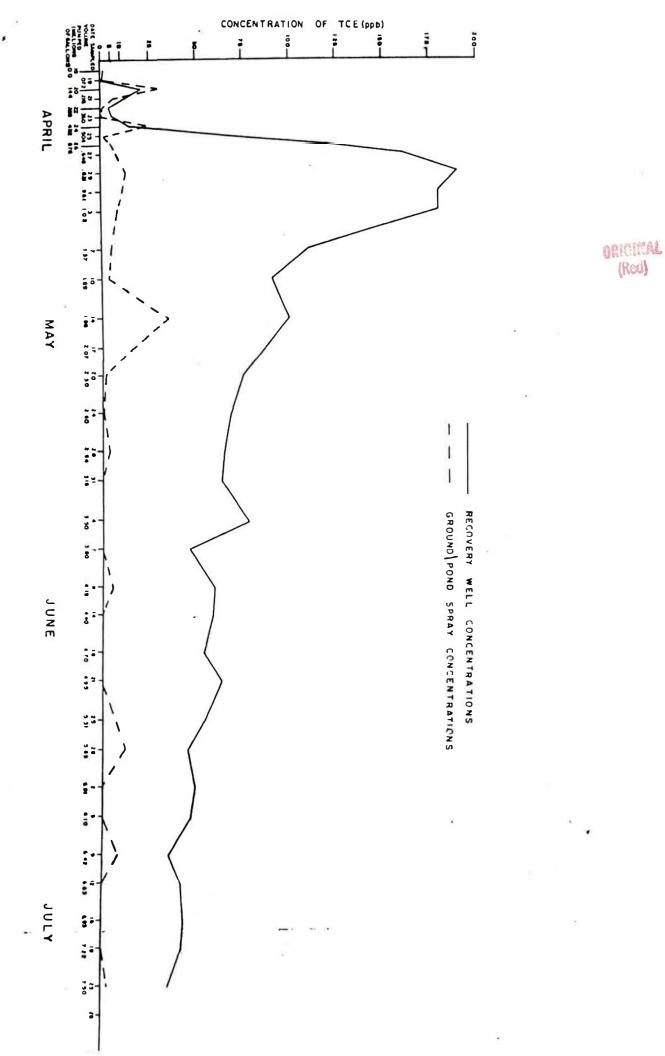
, 7/19/85,

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedures. The analytical results for these two sets of samples are as follows:

GL # 6690-	Sample Identity	C ₂ HCl ₃	CH ₃ CC1 ₃ C	HC1 ₃	C ₂ C1 ₄
1	RW-1 7/16/85	44 ug/L	0	0	2.2 ug/L
2	Ground Spray 7/16/85	0	0	0	0
3	Pond 7/16/85	0	0	0	0
4	MW-19 "	0	0	0	0
GL ● 6696-					
1	RW-1 7/19/85	43 ug/L	0	0	2.2 ug/L
2	Pond "	5.3 ug/L	0	0	0
3	Ground Spray 7/19/85	0	0	0	0
4	MW-19 7/19/85	0	0	0	0

X. Appendix II





REFERENCE 2

REPERENCE 2A



INVESTIGATION OF TCE CONTAMINATION AT CAMDEL METALS CORPORATION

Prepared by:

SMC Martin Inc. 900 West Valley Forge Road P. O. Box 859 Valley Forge, PA 19482

June 1983

Ref: #8713-040-94003



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INVESTIGATION OF TCE CONTAMINATION AT CAMDEL METALS CORPORATION

Background

Camdel Metals Corporation, (a wholly-owned subsidiary of Handy & Harman Corporation) is located on a 15 acre site in the Vernon E. Pike Industrial Park, on Route 10, in Camden, Kent County, Delaware (see Figures 1 and 2). Also in the industrial park are two warehousing companies and a general contractor.

Plant construction was completed in 1981, with plant operations commencing July 1981. The products manufactured at this facility are small diameter stainless steel and other specialty alloy tubing. The process employed involves the repetitive cold reduction of the diameter of the tubing. During this procedure, drawing lubricants are used. After reduction, the tubes must be cleaned of these lubricants using a solvent, principally trichloroethylene (TCE) within a degreaser unit.



Prior to plant design, Handy & Harman sought guidance from Delaware DNR and U.S. EPA concerning specifications for the degreasing and solvent storage facilities. Although neither agency was able to give such guidance, EPA had favorable comments on the state-of-the-art design to be employed in construction of the unit.

A TCE storage tank is located in an enclosed structure attached to the main building (Figure 3). The tank has two



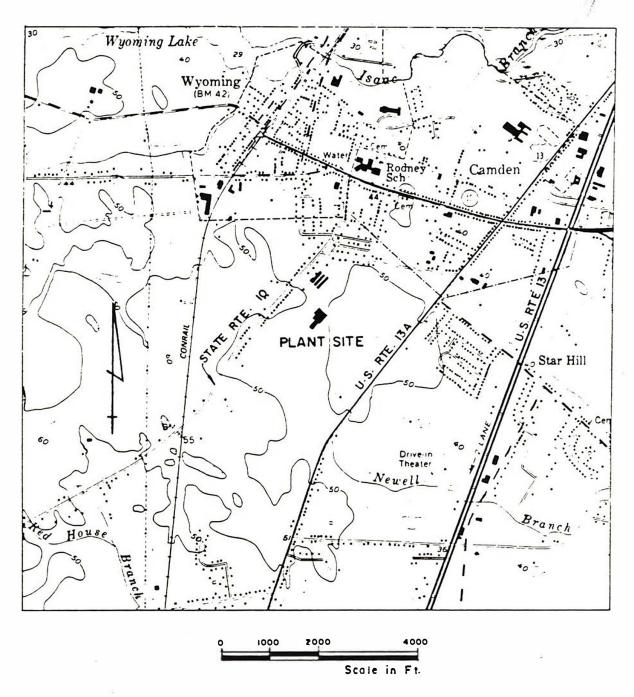
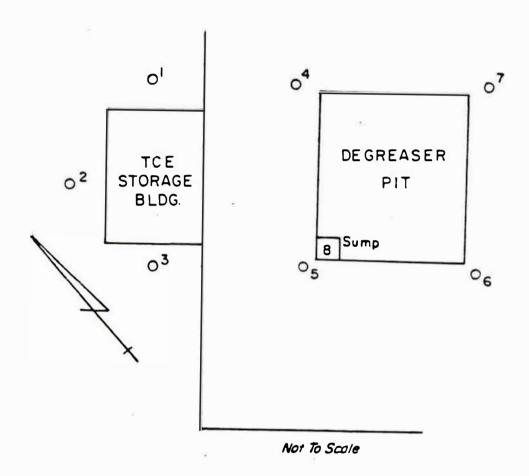


Figure 1. Location Map

Figure 2. Site Plan

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Figure 3. Location of Existing Wells 1-7

3,500-gallon compartments; one for incoming TCE, and one for used TCE. The tank is situated in a gunite-sealed concrete containment basin with a holding capacity of 9,500 gallons.

monitoring wells were installed. Four wells were installed from around the degreeses. around the degreaser pit inside the plant and three were installed outside, adjacent to the solvent storage building (Figure 3).

After the plant had been in operation for approximately one year, the monitor wells were sampled by plant personnel. A composite sample was obtained from the seven wells and sent to an independent private lab for analysis. The result of this analysis showed that there was 160 parts per billion (ppb) of TCE present in the sample.

Purpose and Scope

In response to the identification of TCE in the ground water at the plant, Handy & Harman Corporation retained SMC Martin to conduct further site investigations. Prior to any work at the plant, a meeting was held on March 4, 1983, in the Dover offices of DNREC. Attending this meeting were representatives of Handy & Harman Tube Company, Camdel Metals, SMC Martin, and DNREC. As a result of this meeting, a basic approach for the investigation was outlined and agreed upon. SMC Martin then prepared a work plan which was transmitted to Delaware DNREC on March 18, 1983.



The purpose of these investigations was to assess the extent and magnitude of TCE contamination in the soils and the ground water adjacent to and beneath the plant buildings, and to define the hydrogeologic setting of the site. To accomplish these goals, the following six tasks were performed:

- Near-surface soil sampling around the TCE storage building for TCE analysis.
- The drilling, construction, and development of five additional on-site monitor wells.
- Elevation survey of all wells.
- Collection of water samples from all wells for TCE analysis and the measurement of water level elevations in all wells for the determination of ground-water gradients.
- A well inventory of the number and location of domestic or other supply wells near the plant.

Physical Setting

The Camdel Metals plant is located approximately one mile southeast of Wyoming, Delaware and one mile southwest of Camden, Delaware between Routes 10 and 13A (Figure 1). Figure 2 shows the area in the immediate vicinity of the plant.

The plant site is underlain by deposits of Pleistoceneage sand with subordinate amounts of gravel, clay, and silt. They are referred to as the Columbia deposits and form a mantle across the Coastal Plain of Delaware. These sumficial sands are underlain by older Miocene clay beds, and represent an unconfined aquifer of regional extent throughout the



Delmarva Peninsula. Small streams are incised into the upper part of the Columbia deposits and derive most of their flow from the ground water as they act as shallow drains from the aquifer. These deposits are 53 feet thick at the site, based on information from a monitoring well which was drilled through the Columbia deposits and encountered gray-blue clay unit below the Columbia.

Methodology

Monitor Well Drilling

Five monitor wells were installed May 3-4, 1983 at locations 14-18 as shown on Figure 2. These wells were installed in order to augment information obtained from existing Wells 1-7 and to better define the site hydrogeology. The shallow Wells 14-17 are 20 feet deep and were installed near the four corners of the fence-enclosed portion of the property, and Well 18 (53 feet deep) was installed adjacent to Well 17. The deep well was used to define the subsurface geology, to monitor water quality of the deeper portion of the aquifer in the assumed downgradient direction from the plant, and to determine if any vertical gradients exist. Prior to well drilling, the drilling contractor obtained permits from the state for all five wells.

All five wells were drilled using similar drilling methods and procedures. A 6-3/4 inch drag bit was used on a rotary rig with water as the drilling fluid. Well logs for these five wells are presented in Appendix I.



The shallow wells were completed to the following specifications: following completion of drilling to 20 feet, 2-inch PVC casing, with a 5-foot PVC well screen (.016 inch slots), was set in the borehole. The lower 10 feet of annular space was then gravel packed with \$2 gravel in order to insure good hydraulic communication between the aquifer and the well. A 2-foot seal of bentonite pellets was then placed over the gravel pack to prevent migration of water along the casing. The remainder of the annular space was filled with a clay grout to a depth of 3 feet below the surface. A locking protective steel casing sleeve was then set over the PVC casing and the remaining annular space was cemented to the surface to prevent the migration of surface water along the casing.

The deep well was drilled 3 feet into the clay to a total depth of 56 feet. The borehole from 54-56 feet was filled with bentonite pellets and a 1-foot layer of gravel was placed over the seal. Then, 2-inch PVC casing, with a 5-foot PVC well screen (.016 inch slots), was set in the hole. The remainder of the well construction was identical to that of the shallow wells. Well construction specifications were approved by Delaware DNREC prior to drilling.

All five wells were developed by both air lift and by pumping with a centrifugal pump. This procedure was utilized in order to flush out clay and silt from the formation in

the vicinity of the borehole. Well development insured a good hydraulic connection between the aquifer and the well, as well as enabling the collection of representative ground-water samples. One and one-half hours of air lift development was followed by pumping at 30 gallons per minute for 20 minutes. Within 5 minutes after cessation of pumping, the water levels in the wells recovered to prepumping levels.

Elevation Survey

Following the well installation, an accurate determination was made of casing elevations above mean sea level for all existing and newly-installed wells at the site. Concurrent with this survey, the elevation above mean sea level of a staff gage installed in the retention pond was determined.

Water Sampling

One week after completion of well installation and development, water samples were collected from two locations in the pond, the seven existing wells, and the five new wells. The two pond samples were grab samples at Location 10 and 11 on Figure 2. In conjunction with sampling, depth to water measurements were taken in all wells and a measurement taken on the pond staff gage.

Before well sampling, three well volumes were evacuated from each well in order to obtain representative samples. A gas-activated stainless steel diaplragm pump was used in all but one well where a handheld pitcher-pump was used because



of clearance constraints. Tubing and rope were dedicated for use in each well sampled to prevent cross contamination. In addition, the pump was thoroughly cleaned prior to the evacuation of the next well. Samples were obtained from the discharge tubing after three well volumes had been evacuated from the well. All samples were collected in sterile glass vials with teflon-lined caps, refrigerated, and delivered to a laboratory to be analyzed for TCE, chloroform, 1,1,1-trichloroethane, and tetrachloroethylene. No chloroform, 1,1,1,-trichloroethane or tetrachloroethylene were detected in these samples. The results of this and all other water analyses are shown on Table 1.

Soil Sampling

The only area where solvent is handled outside of the plant is in the vicinity of the TCE storage building.

Therefore, sampling efforts were concentrated within 50 feet of the building. Sampling sites were chosen with the aid of an air monitoring device manufactured by Draeger Industries which was used to field check for presence/absence of TCE in the soil prior to the collection of soil samples for laboratory analyses. The procedure followed for conducting a Draeger test is as follows: a soil sample is placed in a plastic bag, sealed, and then shaken to aerate the soil. Air is then extracted from the bag through a tube packed with chemical crystals which react to a specific compound (TCE in

Table 1. TCE Concentrations (ppb) - Water Samples

Sample Point	11/22/82	12/06/82	12/22/82	01/04/83	02/04/83	05/13/83
# 1 - Well	9.4		35.0		20.0	6.9
# 2 - Well	5.6		33.0		24.0	5.0
# 3 - Well	26.0		50.0		34.0	3.0
# 4 - Well	7,500.0	110.0	40.0		68.0	3.9
# 5 - Well	58.0	34.0	55.0		65.0	38.0
# 6 - Well	29.0		31.0		45.0	24.0
# 7 - Well	23.0		32.0		95.0	20.0
# 8 - Sump	120.0	280.0	190.0		310.0	Dry
# 9 - City Water	0.0					
#10 - Pond NE		4.9	42.0	3.4	18.0	0.0
#11 - Pond SW					18.0	0.0
#14 - Well						0.0
#15 - Well						0.0
#16 - Well						0.0
#17 - Well						0.0
#18 - Well						0.0

⁻⁻⁻ Not sampled.



this case). Though the exact concentration of TCE in soil cannot be determined by this method, the Draeger tubes provided a reliable "presence/absence" test for TCE, thus eliminating excess sampling. Figure 4 shows Draeger test sites and the presence or absence of TCE. Note that Draeger Test Sites D1-D6, which showed no TCE, completely encircled the area of soil contamination.

Based on the Draeger tube analyses, soil samples were collected from six sites as shown in Figure 4. At each location samples were collected at depths of .5 feet and 3 feet. A handheld bucket auger was used to reach the desired depth and a punch tube was used for sampling.

Samples were transferred from the punch tube to sterile glass vials, labeled, and stored in a cooler. To prevent cross contamination between samples, disposable gloves were used for each sample and the auger and punch tube were both cleaned prior to the next sample collection. These samples were then delivered to a laboratory to be analyzed for TCE, chloroform, 1,1,1-trichloroethane, and tetrachloroethylene. No chloroform or tetrachloroethylene were detected in these samples. The results of these analyses are shown on Table 2.

Well Inventory

Inquiries were made concerning the types of water systems used by those residences in the vicinity of Camdel Metals. It was determined that individual wells are used

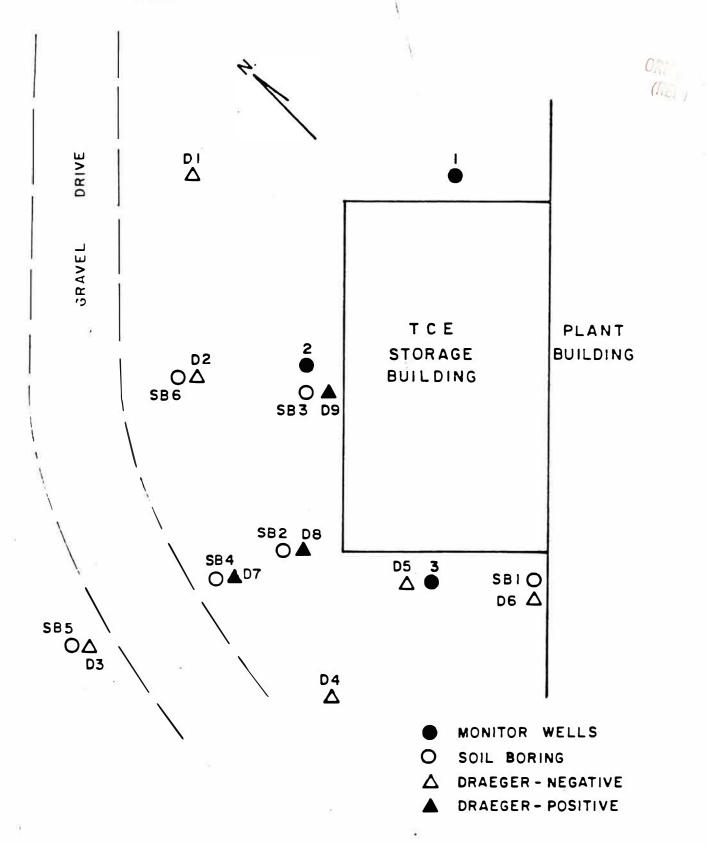


Figure 4. Soil Boring and Draeger Test Locations



Table 2. TCE Concentrations (ppb) - Soil Samples (May 13, 1983)

Sample	መርፍ	1,1,1- Trichloroethane	Chloroform	DCE
Location	TCE	TITCHTOTOECHANE	Chloroform	PCE
SB1-0.5 fee	t 0	0	0	0
SB1-3.0 fee	t 0	13	0	0
SB2-0.5 fee	t 1,200	7	0	0
SB2-3.0 fee	t 0	7	0	0
SB3-0.5 fee	t 27	15	. 0	0
SB3-3.0 fee	t 0	8	0	0
SB4-0.5 fee	t 35	1.5	0	0
SB4-3.0 fee	t 10	8	0	0
SB5-0.5 fee	t 0	12	0	0
SB5-3.0 fee	t 0	9	0	0
SB6-0.5 fee	t 0	3	0	0
SB6-3.0 fee	t 0	10	0	0



exclusively along Route 10 and Route 13A. On South Street (the east-west road which connects Routes 10 and 13A just north of the plant), city water is available, but hookups were not required. While it is not known which residents along South Street are on city water, it is known that the majority still use private wells. The wells nearest the plant are directly north and west of the plant, on South Street and Route 10, respectively.

Site Hydrogeology

Shallow ground water in the area occurs in the Pleistoceneaged Columbia deposits (medium to coarse grained sands,
gravels, and subordinate amounts of clays and silts). Minor
stringers of clay are present, but are not considered to be
of any hydraulic significance. This regional water table or
unconfined aguifer is underlain by a thick bed of gray-blue
clay. The base of the Pleistocene deposits, represented by
this clay bed, dips generally to the southeast.

The water level measurements taken in all wells (Table 3) were used in developing the water table map (Figure 5).

Based on this map, the direction of ground-water flow is in an easterly direction from the plant with a hydraulic gradient of 0.0015 (8 feet per mile). The Columbia deposits underlying the plant have an average transmissivity of 4,500 square feet/day. Based on data obtained during drilling operations, the saturated thickness of these deposits is approximately



Table 3. Water Level Measurements (May 13, 1983)

	Elevation of TOC Water Table		
Well #	DTW (ft)	(ft above MSL)	Elevation
1	7.72	50.61	42.89
2	7.63	50.60	42.97
3	6.82	49.80	42.98
4	7.58	50.50	42.92
5	7.55	50.50	42.95
6	7.52	50.41	42.89
7	7.51	50.42	42.91
14	6.85	49.29	42.44
15	7.12	50.48	43.36
16	7.22	50.20	42.98
17	9.76	51.98	42.22
18	9.26	51.45	42.19
Pond Surface			46.35

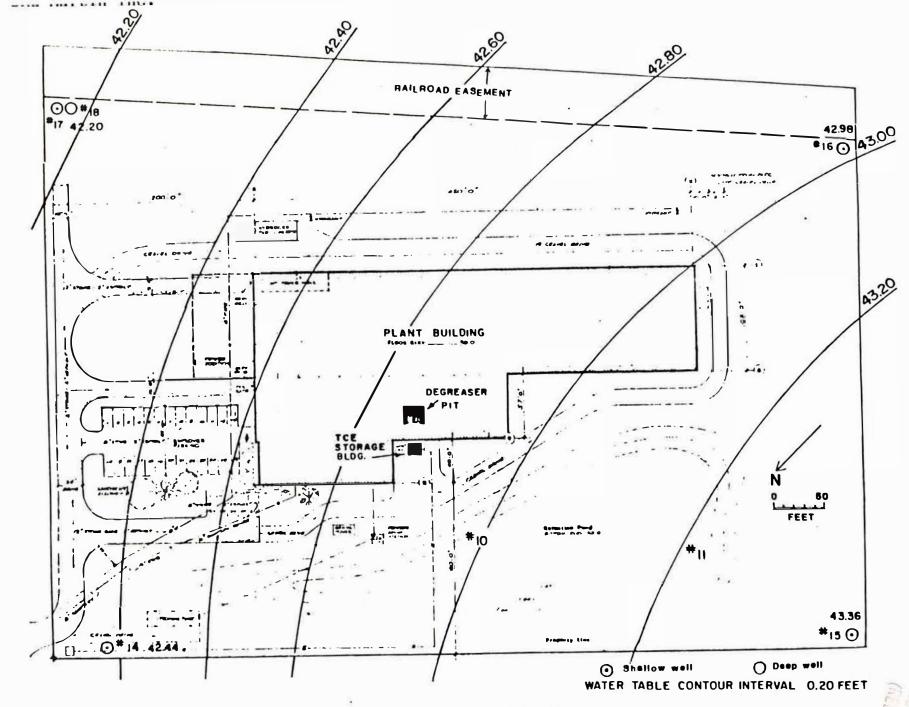


Figure 5. Water Table Map



45 feet and, therefore, the average hydraulic conductivity is 100 feet per day. (Transmissivity = hydraulic conductivity x saturated thickness of the aquifer, where hydraulic conductivity is the permeability factor.) This value is representative of an aquifer composed of medium to coarse grained sand.

The ground-water velocity can be calculated utilizing the Darcy Equation:

$$V = \frac{Ki}{n}$$

where V = velocity

K = hydraulic conductivity

i = hydraulic gradient

n = porosity

Assuming a porosity of 35 percent, and using the aforementioned hydraulic gradient and hydraulic conductivity, the velocity can be calculated to equal approximately 150 feet per year.

The elevation of the stormwater retention pond surface is three feet higher than the elevation of the water table in the wells located within 100 feet of the pond. Because of the highly permeable nature of the subsurface material at the site, a three-foot head difference would not be maintained between the pond and the water table if a good hydraulic connection existed. This indicates that there is a poor hydraulic connection between it and the ground-water system. This poor hydraulic connection is probably related to siltation associated with stormwater runoff.

Contamination Assessment



Soil Sampling

The soil sampling results shown in Table 2 indicate that TCE contamination is limited in areal extent. Shallow contamination was found near the TCE unloading area. The highest TCE concentration, 1.2 ppm was at SB2 at a depth of .5 feet. This sample was taken in a small (approximately 3 feet by 6 feet) depression which receives locally derived runoff. With sufficient rainfall, this depression overflows and drains across the road towards the pond. Points sampled along this drainage path showed significantly lower TCE concentrations than the depression, with concentrations decreasing towards the pond (Sites SB2, SB4, and SB5).

Minor amounts of 1,1,1-trichloroethane were detected in every soil sample except for one. This compound is used in the plant for touch-up operations on finished tubing.

Delivery, handling, usage, and storage of 1,1,1-trichloroethane are all confined to a limited area within the plant building.

In-plant activities utilize only minor quantities of this compound and it has not been handled outside the plant where its presence is indicated. The levels present in the soil have no correlation with TCE, and 1,1,1-trichloroethane is not present in the ground water. Therefore, there is no reason other than laboratory error which explains this contamination.



Table 1 contains data on TCE concentrations in ground and surface water for all samples collected to date. Based on these data, it can be seen that:

- TCE contamination is not present in the new wells drilled, and has therefore not migrated off-site.
- Significant reductions in TCE concentrations have occurred in the seven original monitoring wells and in the pond since the February 4, 1983 sampling round. Two factors contribute to this reduction: a) elimination of TCE sources related to the handling of TCE, which can be attributed to the implementation of those recommendations concerning TCE handling in SMC Martin's February 4, 1983 letter report to Handy & Harman Tube Company and forwarded to Delaware DNREC; and b) dilution caused by extensive spring recharge.

Recommendations

The following recommendations are made for further efforts with regard to the presence of TCE in the soil and ground water:

- Excavate the area of maximum soil contamination and conduct on-site landfarming of soil. Landfarming would involve placing the contaminated soil on a plastic liner for two or three days (dry weather only). The soil would be turned several times a day until it had been aerated enough to remove the TCE by volatilization, and then used to fill in the excavated site.
- Conduct an additional sample round within the next two months to verify the sample results presented in this report.
- Assuming that this sample round verifies the results in this report, set up a long-term monitoring program.



APPENDIX I

45 - 53 53 - 53.5 53.5 - 56

APPENDIX I

GEOLOGIST'S LOGS

<u>Depth</u>	Description
Monitor Well	1 #14
0 - 3 3 - 5 5 - 11 11 - 18 18 - 20	Light brown, clayey sand. Dark reddish-brown coarse grained sand. Tan, medium to coarse grained sand. Orange, brown, medium grained sand. Orange, brown, coarse grained sand with pebbles.
Monitor Well	ls #15 and #16
0 - 3 3 - 5 5 - 15 15 - 20	
Monitor Well	<u> </u>
0 - 8 8 - 13 13 13 - 18 18 - 20	Gray brown, clayey sand. Reddish brown, clayey sand. Orange clay stringer. Dark orange, brown, coarse grained sand. Light orange, brown coarse grained sand.
Monitor Well	<u> </u>
0 - 8 8 - 13 13 13 - 18 18 - 20 20 - 25 25 - 30 30 - 35 35 - 40 40 - 45	Gray brown, clayey sand. Reddish brown, clayey sand. Orange clay stringer. Dark orange, brown, coarse grained sand. Light orange, brown coarse grained sand. Light orange, brown, medium grained sand. Light orange, brown, medium grained sand. Light orange, brown, coarse grained sand. Light orange, brown, coarse grained sand with pebbles and gravel. Light orange, brown, medium grained sand with
45 - 53	some pebbles. Tan medium grained sand with some pebbles.

Light bluish gray clay.

Dark gray clay.

REFERENCE 2B



STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL DIVISION OF ENVIRONMENTAL CONTROL WATER RESOURCES SECTION

89 KINGS HIGHWAY P.O. BOX 1401 DOVER, DELAWARE 19903

TELEPHONE: (302) 736 - 4761

December 6, 1983

Mr. Robert H. Zimmerman Manager of Engineering Handy & Harmon Tube Co., Inc. Township Line & Whitehall Road RD #3 Norristown, PA 19401

Dear Mr. Zimmerman:

Attached are the analytical results of DNREC's water sampling at Camdel Metals monitor wells collected on October 17-18, 1983. In summary, we came, we looked, and - at some variance to your consultants findings - we did find trichloroethylene (TCE) and other synthetic organic compounds in groundwater samples.

I indicated (before our results were complete) by telephone to Greg Hill, your consultant with SMC Martin that a negative result would obviate the need for the proposed follow-up sampling by Camdel Metals. At this point, I would suggest that the follow-up be performed as soon as practical and that you submit a plan for long-term monitoring and action to prevent the migration of organics from becoming a threat to water supplies or the environment. We anticipate a response on these matters within (60) days of the date of this letter.

Sincerely

Supervisor

Michael A. Apgar,

Water Supply Branch

Attachments

pc: Gregory Hill
Millard Vaughn
William G. Razor
Mark Blosser

Camdel Metals Corporation Monitor Well Sampling Results

Well Date of Samplin	ng	1 10-18-83	2 10-18-83	3 10-18-83	4 - 10-18-83	5 10-18-83	6 10-18-53	7 10-18-33	14 10-17-83	15 10-17-83	16 10-17-83	17 19-17-83	18 10-17-
Compound													
Trichloroethylene	μg/L	9.1	5.3	4.5	17.0	≈ 8.0	23.0	17.0					
Benzene	ug/L	6.4			26.0			94.0					
Tetrachlorocthylene	e ug/L	1.6											
Toluene	rg/L						E	7.3					
Ethylbenzene	≥g/L	6.4					7.1	49.0				Σ.	
0-xy·lene	;g/L	18.0	21.0					4.6					
M-xylene	Lg/L	18.0	43.0		15.0		12.0	5.7					
P-xylene	₽g/L	6.3	21.0					145.0					

Blank spaces - below detection limit $\mu g/L$ - ppb parts per billion

Compiled 11-22-83.

M. Boller
Water Supply

F.U. BOX 1401 DOVER, DELAWARE 19901

ORIGINA	
OWIP!!!	1
(RED)	_
1.20)	

Measured	by Boll+1	
		(A)
Date	10-17-8	3

WATER LEVEL DATA SHEET

Well Field Location · Candal	metals	·
Measuring Device		

4e]] ∦	Time	Level Reading	Reading Correction	Water Level Depth below TOC	T(DC EMSL	Wat <u>Lev</u> ELS	
7		9.68				44,24		34.61
15		4.43		duplicate		50 48		40,55
16		9.97				50.20		40,23
17		12.64				5118		39,34
18		12.20	545		*	51.95		39.25
145		10.66	Steel .	N.		50.61		40,05
٤ .	91	10 44	inin after			50 60		40.16
3 .		9.62	16.71.			49 80		40.15
4		10.37				5050	-	40.13
5		10.34				50.50		40.16
φ		10.32			<u> </u>	50.41		5-122
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REFERENCE 2C

SMC Martin Inc.

ORIGINAL (RED)

900 W. Valley Forge Road P.O. Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 or 783-7480

July 18, 1984

Ref: #8713-040-94002

Handy & Harman Tube Company Township Line and Whitehall Roads R. D. #3 Norristown, PA 19401

Attention: Mr. Robert M. Zimmermann

Subject: July Quarterly Sampling and Monitoring Results

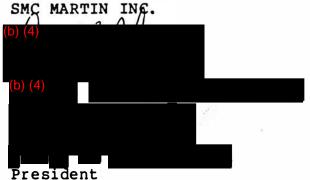
Camdel Metals

Dear Mr. Zimmermann:

Attached are the results of the July 2, 1984 sampling round at the Camdel Metals Plant, Camden, Delaware. During the sampling round, Wells 4, 7 and 17 were sampled and water was analyzed for TCE concentrations. Also included are the raw data collected during the water level measurement effort. The depth to water from top of casing, the elevation of the top of casing and the elevation of the water table are tabulated for each well. These data are graphically presented on the water table contour map also attached.

Should you have any further questions or comments, please do not hesitate to call.

Very truly yours,



Delaware Professional Geologist Registration #110

DRP/GHE/bf 8713L4

cc: (b) (4)



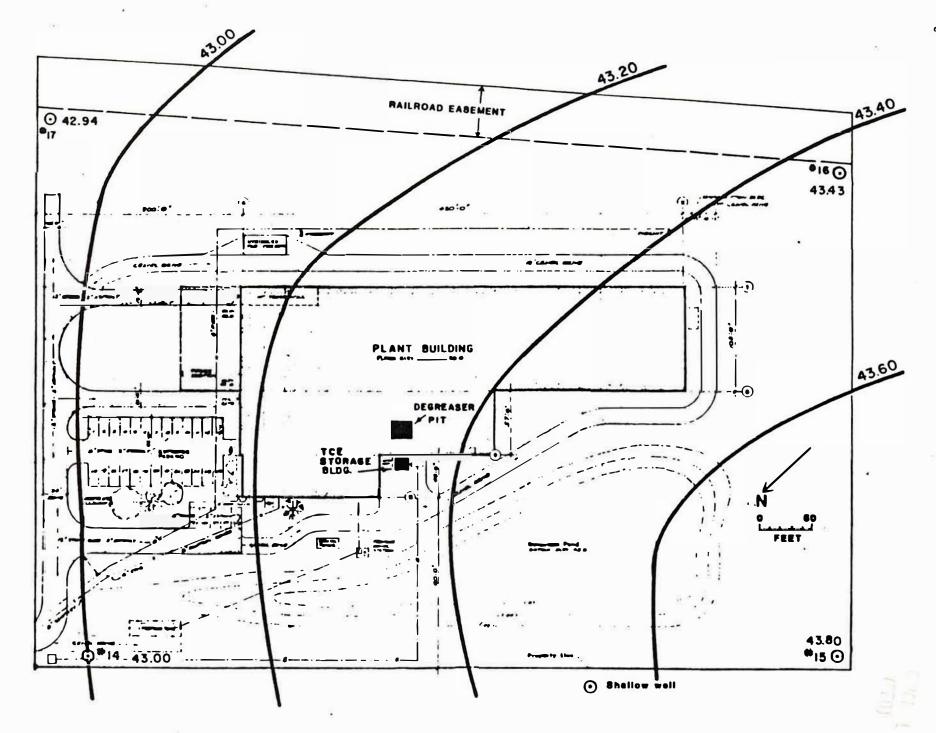
TCE Concentrations (ppb) - Water Samples July 2, 1984 Camdel Metals

Well_#	TCE
4	31
7	18
17	0



Water Level Measurements (July 2, 1984)

Well #	DTW (ft)	Elevation of TOC (ft above MSL)	Water TableElevation_
4	6.96	50.50	43.54
7	6.90	50.42	43.52
14	6.29	49.29	43.00
15	6.68	50.48	43.80
16	6.77	50.20	43.43
17	9.04	51.98	42.94



Water Table Contour Map - Camdel Metals July 2, 1984 (0.2 foot contours)

SMC Martin Inc.

900 W Valley Forge Road PO Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 or 783-7480

April 20, 1984

Ref: #8713-040-94002

Handy & Harman Tube Company Township Line and Whitehall Roads R. D. #3 Norristown, PA 19401

Attention: Mr. Robert M. Zimmermann

Subject: April Quarterly Sampling and

Monitoring Results - Camdel Metals

Dear Mr. Zimmermann:

The initial sampling round outlined in the long-term monitoring program submitted to Mr. Apgar of the Delaware DNREC was conducted on April 13, 1984. Subsequent to the monitoring program submittal, discussions with Mr. Apgar resulted in changes to the program regarding sample locations, water level measurements and water table maps. A letter from Mr. Apgar dated April 11, 1984, authorized the sampling of Wells 4, 7 and 17 on a quarterly basis and, although not required, indicated that annual sampling of Wells 14, 15 and 16 would be prudent. Mr. Apgar requested that water level measurements, a water table map and TCE analysis results be included in the quarterly submittal of sampling results.

Attached are the results of the April 13, 1984 sampling round. As we discussed, Wells 14, 15 and 16 were sampled during this start-up sampling round and will be sampled again in April 1985. Wells 4, 7 and 17 were also sampled and will be sampled again in July 1984.

Also included are the raw data collected during the water level measurement effort. The depth to water from the top of casing, the elevation of the top of casing and the elevation of the water table are tabulated for each well. These data are graphically presented on the water table contour map also attached. Although a similar pattern to the contour map generated in May 1983 is apparent, influence from the unusually wet spring is indicated by the elevated water table.

April 20, 1984 Ref: \$8713-040-94002 Mr. Robert M. Zimmermann

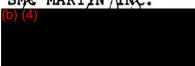
Page 2



Should you have any further questions or comments, please do not hesitate to call.

Very truly yours,

SMC MARTIN INC.



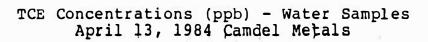
Project Manager/Hydrogeologist



Delaware Professional Geologist Registration #110

DRP/GHE/bf 8713LDRP

cc: (b) (4)



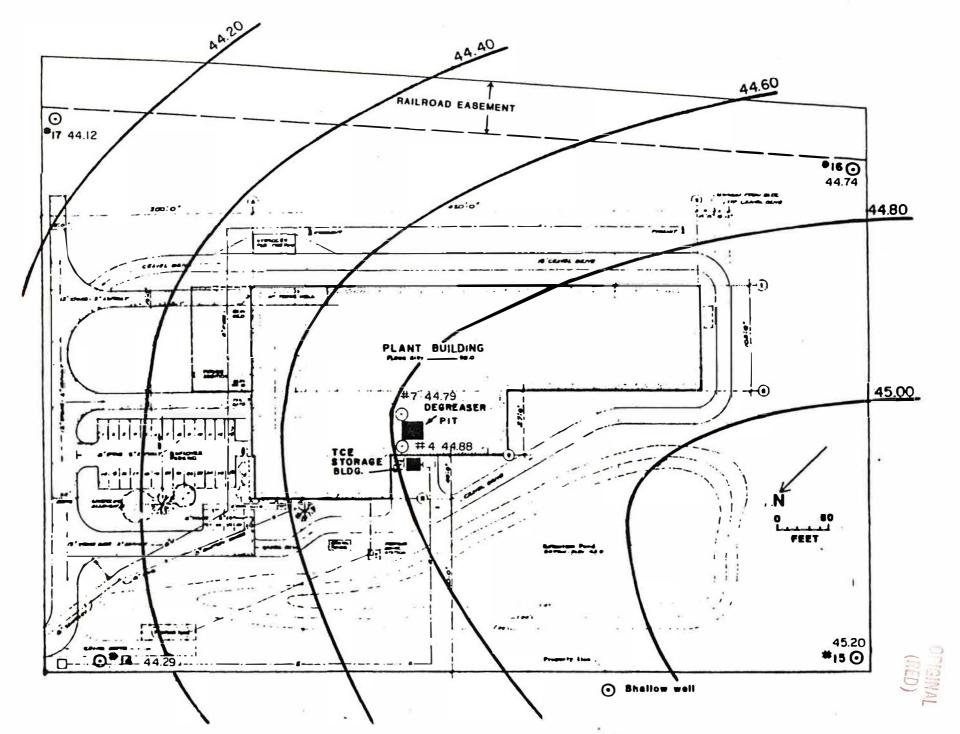
(1)

Well_#	TCE
4	16
7	6
14	0
15	0
16	0
17	0



Water Level Measurements (April 13, 1984)

Well_#	DTW_(ft)	Elevation of TOC (ft above MSL)	Water Table _Elevation_
4	5.62	50.50	44.88
7	5.63	50.42	44.79
14	5.00	49.29	44.29
15	5.28	50.48	45.2
16	5.46	50.20	44.74
17	7.86	51.98	44.12



Water Table Contour Map - Camdel Metals April 13, 1984 (0.2 foot contours)

REFERENCE 2D

900 W. Valley Forge Road P.O. Box 859 Valley Forge, Pennsylvania 19432 Telephone 215 265-2700 or 783-7480

November 2, 1984 Ref: 8713-040-94003

Mr. Michael Apgar
Delaware Division of
Environmental Control
P. O. Box 1401
89 Kings Highway
Dover, DE 19901

Subject: Camdel Metals TCE Spill

RECEIVED

NOV 7 1984

WATER SUPPLY BRANCH

Dear Mike:

This letter is to confirm the information provided to the Department of Natural Resources and Environmental Control (DNREC) on October 15, 1984 with respect to a spill of Trichloroethylene (TCE) that occurred at Camdel Metals and the proposed remedial measures that we discussed pursuant to our telephone conversation of October 26, 1984. The cleanup plan describes in detail those steps which Camdel Metals proposes to implement to address any potential environmental harm that may have resulted from the spill.

According to plant personnel, approximately 75 gallons of TCE were spilled onto the plant floor when a pipe providing TCE to the degreaser unit broke while the machine was operating in its automatic cycle. Since then, operating procedures have been revised to provide for immediate shutdown should a similar mechanical failure occur. The TCE traveled in a southwesterly direction to an exterior wall (Figure 2) where it exited the building onto a gravel-covered area adjacent to the building. Based on the amount of TCE recovered in the building, plant personnel involved in the ensuing cleanup indicated that approximately 10 to 15 gallons of TCE escaped to the soil outside. A design study is currently underway to develop an effective in-plant containment system for this area.

Soil sampling, in the area where the TCE exited the building, was conducted on October 16, 1984 to determine the vertical and horizontal extent of TCE contamination. To aid in this determination, a series of soil samples were collected at varying depths using a hand (screw type) auger and analyzed in the field using the Drager tube method. This method employs a modified headspace technique, where volatilization of TCE is induced into the air within a plastic bag. This air is then pumped through TCE-specific colormetric tubes (Drager Inc.) and

November 2, 1984 Ref: 8713-040-94003 Mr. Michael Apgar Page Two

a direct reading of TCE concentration is made. This analysis, in conjunction with analytical results obtained from the nearest downgradient well (Well #6, 4,900 ppb), would seem to indicate that TCE has reached the ground water in the area where it exited the building, although the integrity of this well must be evaluated due to its location in the immediate spill area. Given the rate of ground-water movement in this region (approximately .411 ft/day), it is highly unlikely that contamination could have migrated to Well #6, which is located approximately 40 feet from the spill area. Further soil sampling was conducted using the aforementioned method, with results indicating an area of contamination approximately 8 feet x 38 feet (Figure 2). Depths of contamination ranged from five feet (maximum auger depth) adjacent to the spill, to two feet on the outer perimeter.

Camdel Metals has an existing ground-water monitoring network consisting of nine wells and three well points (Figures 2 and 3) to aid in monitoring the extent of a contamination plume that may have resulted from this spill. Four of these wells, which surround the degreaser unit, and the three well points surrounding the TCE storage tank were installed prior to plant operation with EPA concurrence.

We understand that representatives of DNREC have requested that all contaminated soil be removed from the site for disposal in a secure hazardous waste landfill. As you are aware, there are no such facilities located in Delaware or in any of the immediately surrounding states which will mean hauling the contaminated soil to either Ohio or South Carolina. Given Camdel's ability to deal with the contaminated soil on site in an environmentally sound and legally acceptable manner, we have set out below an alternative remedial plan.

1. Remove and aerate contaminated soil via plowing or tilling on plastic sheeting in order to exploit the inherent volatile properties of TCE. After volatilization is complete and the absence of TCE is verified by laboratory analysis, the soil will be spread on site. We believe that this proposal will accomplish all of the environmental objectives of DNREC's suggestions in a more cost-effective manner. More importantly, this plan is not dependent on the performance of third party contractors and does not create the liability associated with off-site disposal remedies. Camdel Metals is prepared to implement its recommended plan upon approval by DNREC.

in a freeto.

OFFERING (SED)

November 2, 1984 Ref: 8713-040-94003 Mr. Michael Apgar Page Three

- 2. Evaluate the integrity of Well #6, which was sampled and showed TCE contamination. It may be possible that a TCE plume has not spread from the area where it exited the building to this well, but that the TCE spilled inside the building may have migrated down an ineffectively-sealed well casing.
- 3. Install a recovery well in the spill area and pump the contaminated water to a sprinkler head located on the roof of the building. The runoff will be collected in the existing stormwater collection system and discharged to the sanitary sewer system upon approval by state and county authorities.
- 4. Perform soil and water sampling to verify the effectiveness of the above remedial measures.

We would appreciate the opportunity to meet with you and discuss the above remedial program prior to any final decision being made.

Sincerely,

SMC MARTIN INC.

(b) (4)

Soil Scientist

SJ:rm Enclosure 8713LlJ

cc: Marc Gold, Esquire
Bob Zimmerman
Tom Walsh



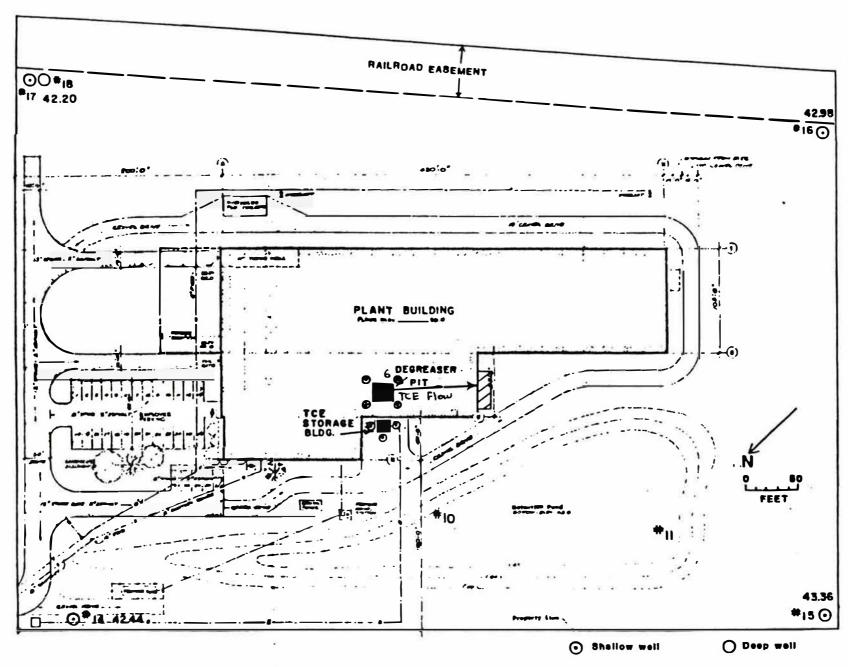


Figure 2. Site Plan





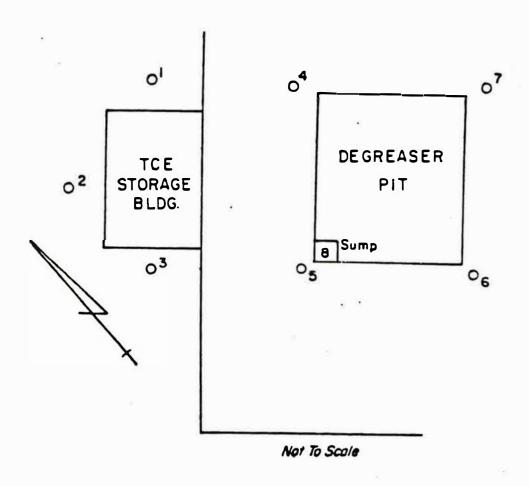


Figure 3. Location of Existing Wells 1-7



REFERENCE 2E

SMC Martin Inc.



900 W. Valley Forge Road P.O. Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 or 783-7480

February 1, 1985 Ref: \$8713-040-94003

Mr. George Bender
State of Delaware
Department of Natural Resources
and Environmental Control
Solid Waste Section
89 Kings Highway
P. O. Box 1401
Dover, DE 19903

Reference: On-Site Treatment of Trichloroethylene (TCE)

Contaminated Soil via Soil Shredding at

Camdel Metals

Dear Mr. Bender:

This letter is to provide the Department of Natural Resources and Environmental Control (DNREC) Solid Waste and Water Resources sections with details of the current and proposed clean-up operations performed at Camdel Metals located in Camden, Deleware.

A spill of TCE at this site was previously reported to DNREC in our letter of November 2, 1984. Remedial action regarding the clean-up operation was divided into two phases; Phase I dealt with the on-site treatment of contaminated soils. Phase II will address ground-water concerns.

Treatment methods of the contaminated soil that resulted from this spill were presented to DNREC in our meeting at Camdel Metals on November 19, 1984. Specific details of the treatment method to be used were provided to you in our letter of November 27, 1984. Approval for the treatment method described was granted by DNREC in your phone conversation of November 29, 1984. Due to the inherent difficulties involving availability and mobilization of the soil shredding machine, treatment of the contaminated soils was not begun until December 17, 1984. Treatment continued through December 29, 1984. Treatment of ground-water contamination that may have resulted from this spill will be dependent upon the analytical results obtained from the proposed resampling of recovery well number one (RW-1) which was installed on December 6, 1984.

February 1, 1985 Ref: #8713-040-94003 Mr. George Bender Page 2

PHASE I - CLEAN-UP OPERATION - TCE REMOVAL FROM SOILS

Overview of the Soil Shredder Operation

On-site treatment of approximately 200 yds³ of TCE contaminated soils that resulted from an accidental spill of TCE at Camdel Metals was accomplished by use of a soil shredding machine and front-end loader. The soil shredding machine exploits the natural volatility of TCE by shredding and aerating the soil. This operation thoroughly mixes the soil and produces a more uniform material. Thus, the sampling difficulties often associated with large volumes of material having varying contaminant concentrations is overcome. This shredding and mixing process is more completely described with the diagram in 'Attachment A'.

Sampling Methodology

Two samples per pass through the shredder were collected by placing a five-gallon plastic bucket immediately above the existing waste pile in order to duplicate conditions of the material as it struck the pile. Approximately two gallons of soil were allowed to collect in this manner before the sample was obtained from different portions of each bucket. Immediately after collection, each sample was placed in an iced cooler in order to preserve sample integrity, and logged in the soil scientists' field book. Chain-of-custody forms also accompanied each sample shipment. Samples were delivered to Greenwood Labs on a daily basis to further insure sample integrity and to monitor the concentration of TCE remaining after each pass.

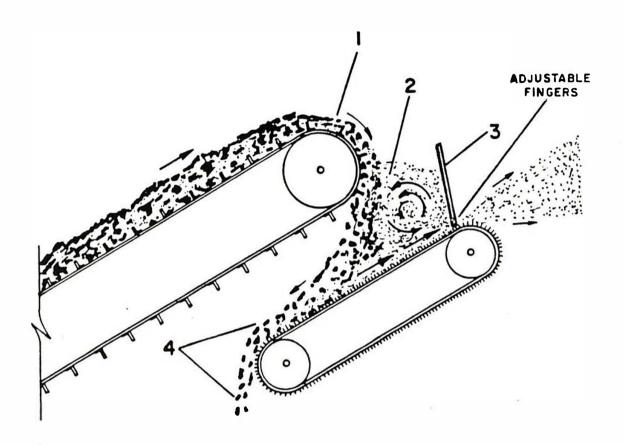
A total of twenty-six samples, representing thirteen passes through the shredder, were obtained in the above described manner. Test results are displayed in the attached graphs (Figures 1-3), with individual sample results presented in Appendix A.

Treatment Results

As you may be aware, current analytical capabilities limit the detection of TCE in soil to approximately 5 parts per billion. Although detection of TCE in soil is possible at these levels, an accurate quantification of an amount that is less than 15 parts per billion is subject to an error of approximately

ATTACHMENT A





OPERATION (1) Flighted conveyor unloads hopper-delivers soil mix ingredients into shredding belt. (2) High-speed, cleated belt shreds ingredients...aerates and thoroughly mixes with a violent churning, tumbling action. (3) Fully processed mix discharges. Adjustable fingers (variable sweep) permit selection of coarseness of mix discharged. (4) Over-size materials move back for additional processing....sticks, stones and other nonshreddables are rolled back for discharge through trash chute.

FIGURE I CONCENTRATIONS OF INDIVIDUAL SAMPLES AFTER EACH PASS (TWO SAMPLES / PASS)

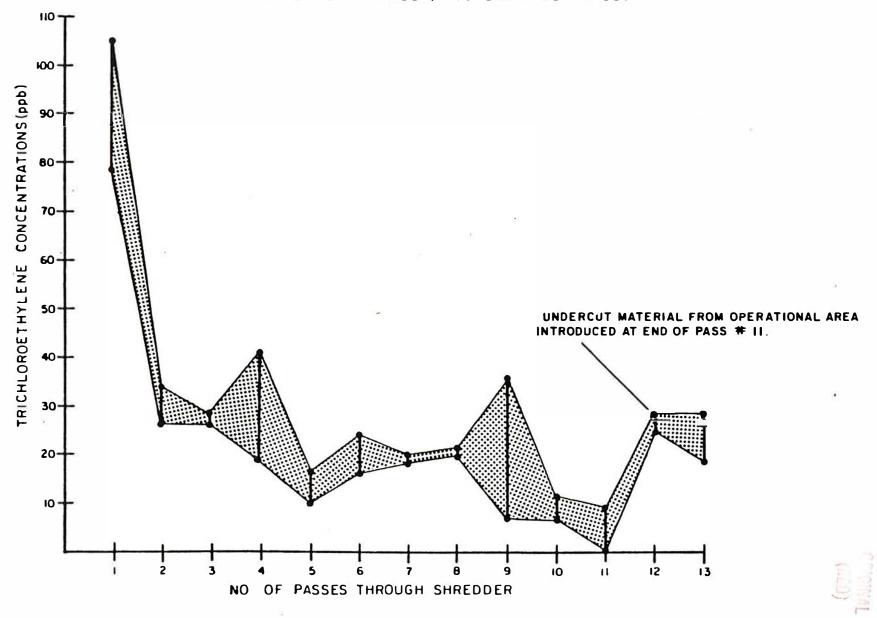


FIGURE 2
AVERAGE TRICHLOROETHYLENE CONCENTRATIONS
AFTER EACH PASS

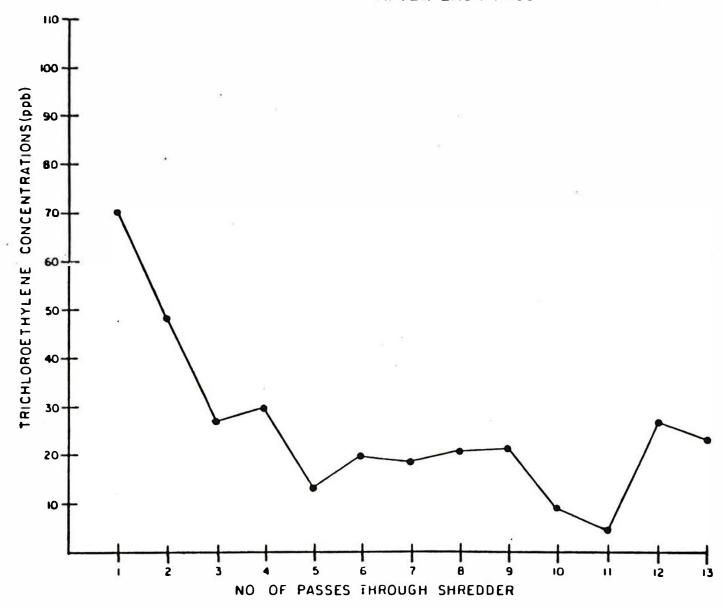
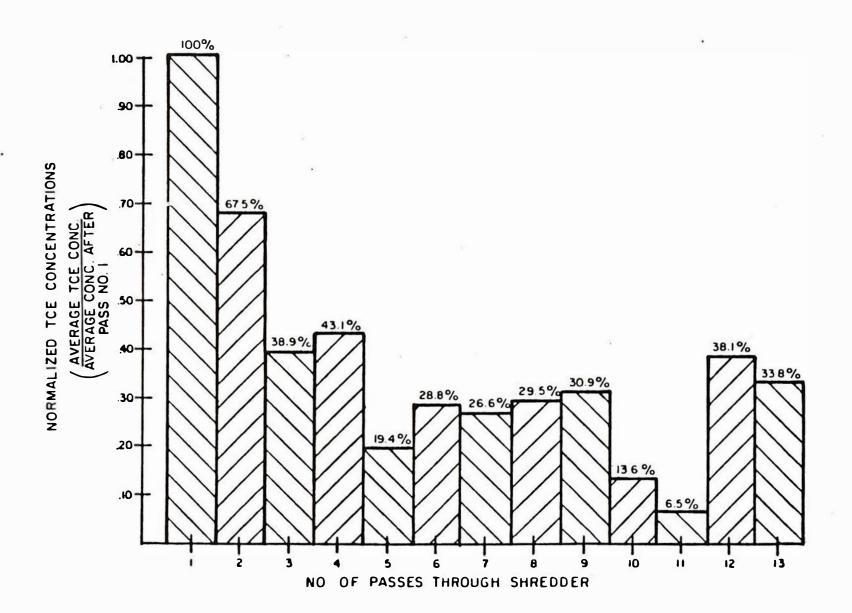




FIGURE 3
NORMALIZED TCE CONCENTRATIONS
(% PRESENT)





February 1, 1985
Ref: #8713-040-94003
Mr. George Bender
Page 3

30 percent. A more detailed explanation of the difficulties involved in an accurate quantification of an amount of this size is provided in Appendix B. As shown on Figures 1-3, this range in TCE concentration was achieved by the tenth pass through the shredder. At the request of DNREC, the operational area was undercut from one to three inches to prevent the spread of contamination to the adjacent soil at the end of the eleventh pass. This soil was then placed on the pile of previously treated soil and put back through the shredder for the twelfth and thirteenth passes. The resulting increase in TCE concentrations beginning with the twelfth pass can be attributed to this remedial measure. Given the average TCE concentrations at the end of the shredding operation (23.5 ppb) and the amount of soil in the waste pile, (approximately 200 yds3), the corresponding amount of TCE will be 0.000966 gallons by volume and 0.01175 pounds by weight, as derived below:

Mass of =
$$\frac{-9}{23.5 \times 10}$$
 gr TCE \times 454 gr soil \times 2.000 lbs soil \times TCE gr soil lb soil ton soil

= 0.01175 1b TCE

Density = 91.0 lb/ft^3 [specific gravity of TCE x density of TCE of water) = $(1.459)(62.4 \text{ lb/ft}^3)$]

The resulting reduction of TCE concentration corresponds to 66.2 percent removal at the end of the shredding operation.

January 29, 1985
Ref: #8713-040-94003
Mr. George Bender
Page 4

Recommendations

The volume of TCE remaining in the soil affected by the spill, as shown above, is less than one thousandth of a gallon. It is Camdel Metals' intent to further reduce the amount of TCE by spreading the soil thinly on-site during suitably dry and warm weather. As we have demonstrated before, this procedure maximizes volatilization and photo decomposition of TCE, and under optimum conditions the TCE concentration will be reduced to below detectable limits (less than ~5 ppb).

Due to the significant reduction in TCE concentrations (about 66.2 percent) accomplished by the soil shredding process, we believe it will be more than adequate to volatilize any remaining TCE by spreading the soil on-site in the above described manner. TCE concentrations will be monitored during the soil spreading operations, which will continue until the TCE concentrations are below detectable limits. DNREC will be kept informed of all monitoring efforts and results.

PHASE II - CLEAN-UP OPERATION - GROUND-WATER CONCERNS

Ground-Water Sampling

Sampling of the recovery well (RW-1) installed in the immediate spill area was conducted on December 28, 1984 using EPA approved methods. Sampling procedures included the purging of three well volumes (approximately 200 gallons) using a stainless steel Grundfos SP1-9 submersible pump with dedicated rope and disposable polythylene tubing. Individual samples were collected using a stainless steel bailer with a dedicated rope. Two samples were obtained from the well. The first sample, RW-1, showed a TCE concentration of 4.3 ppb. A second sample, MW-1, a blind duplicate, was obtained to verify the accuracy of the analysis and showed a TCE concentration of 3.7 ppb (Appendix A).

Recommended Ground-Water Recovery Scenarios

Steve Young of the Department of Natural Resources and Environmental Controls' Water Resources Section has indicated that Monitoring Well RW-l should be pumped to recover any possible contamination that may have migrated from the spill area. It has been suggested that any possible plume that may have occurred as a result of the spill would have traveled

February 1, 1985
Ref: #8713-040-94003
Mr. George Bender
Page 5

approximately forty feet, based on horizontal ground-water velocity of 0.41 feet per day and assuming ninety days since the date of the spill. The total extraction volume required for the recovery of a possible plume from a distance of forty feet would be approximately 302,400 gallons which would be discharged to the nearby stormwater retention basin. TCE concentrations have historically been in the 25-50 ppb range in the area of the degreaser which is located approximately thirty-five feet northeast of the recovery well. TCE concentrations resulting from the above mentioned amount of pumping found to contain less than those historically present would not be representative of a contamination plume resulting from the spill, but rather a result of previously existing contamination. Ground-water monitoring will continue in the previously approved manner if contaminant concentrations prove to be equal to or less than those already present in the degreaser area. Various recovery time scenarios are presented in Attachment B.

Upon your approval, we will implement one of the scenarios proposed in Attachment B in order to recover any possible contamination plume that may have resulted from the spill. Pumping rates and times will be adjusted in order to accommodate the actual travel time of a possible contamination plume.

If you should have any questions or comments concerning the above report, please do not hesitate to contact us.

Very truly yours,

SMC MARTIN INC.



Soils Scientist

SEJ/bf Enclosure 87:3L1

cc: T. Walsh

R. Zimmermann

M. Gold

M. Apgar

S. Young

ATTACHMENT B.

RECOVERY PROGRAM DESIGN



Plume Migration (based on ground-water flow)

$$D = V_{\omega}(t)$$

where

D = distance of plume migration from spill site (ft)

 V_{W} = horizontal ground-water velocity (ft/day)

(from report)

t = time in days since spill

$$D = 0.41 (90) = 36.9 \text{ ft}$$

= ~40 ft

Recovery Time Scenarios

Q = pumping rates (gpm)

i = ground-water gradients to pumping well

V = ground-water velocity under pumping conditions

Tt = travel time of plume to pumping well

Recovery rates based on 1-day pumping velocities

1. Q = 50 gpm 2. Q = 75 gpm i = 0.032 i = 0.049 V = 9.14 ft/day V = 14 ft/day $T_t = 4.4 \text{ days}$ $T_t = 2.9 \text{ days}$

Total Extraction Volume - All Scenarios

302,400 gallons

APPENDIX A

Greenwood Laboratories

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIEE

EENNETT BQUARE. PA. 19348 PHONE: 815-888-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

December 19, 1984

GREENWOOD NO. GL 6478

SUBJECT:

Examination of soil samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6478-1 thru -6: Camdel Metals Corporation

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure for similar samples. The analytical areults are as follows:

GL • 6478-		Sample Identity	C2 ^{HC1} 3	CH3CC13	CHC13	C ₂ C1 ₄
1	12/17/84	1st Bucket Before 1:30 pm	19 ng/g	0	0	0
2	•	1st Bucket After 1:35 pm	34 ng/g	0	0	0
3	•	1st Pass ∉1 2:45 pm	1057g/g	0	0	0
4	*	1st Pass #2 3:30 pm	78 ng/g	0	0	0
5	•	Random Before(1st pass)3:45 pm	64 ng/g	0	0	0
6	•	Random After(1st pass)3:52 pm	54 ng/g	0	0	0



GREENWOOD LABORATORIES

GRU: del

Greenwood Laboratories



903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PMONE: 215-288-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

December 20, 1984

GREENWOOD NO. GL 6481

SUBJECT:

Examination of soil samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6481-1 thru -3: Camdel Metals Corporation (listed below).

SUMMARY:

These samples have been examined by gas chamatography using the previously described procedure. The analytical results are as follows:

GL # 6481-	Sample Identity		HC1 ₃	CH3CC13	CHC1 ₃	C ₂ Cl ₄
1	2nd Pass #1 12/18/84 2:40	pm 34 r	ng /g	0	0	0
2	Before 2nd Pass # 3:25	pm 77 r	(g/g	0	0	0
3	After 2nd Pass * 3:28	pm 81 I	ng /g	0	0	0

Note: ng/g = ppb w/w

GREENWOOD LABORATORIES

GRU: del

Copy: R.

& Harman Tube Co.; (b) (4)

, Camdel Metals Corp.

Greenwood Laboratories





903 E. BALTIMORE PIEE

EENNETT SQUARE. PA. 19348 PHONE: 215-288-7295

TO:

(b) (4)

SMC Martin P.O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

December 21, 1984

GREENWOOD NO. GL 6484

SUBJECT:

Examination of soil samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6484-1: 2nd Pass #2 12/20/84 9:10 a.m. GL 6484-2: 3rd Pass #1 " 12:50 pm GL 6484-3: 3rd Pass #2 " 1:30 pm GL 6484-4: 4th Pass #1 " 3:45 pm

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

Sample Identity	Trichloroethylene (C ₂ HCL ₃)
2ND Pass €2	26 \ g/g
3rd Pass ∉1	26 ng/g
3rd Pass €2	28 η g/g
4th Pass # 1	41 ng/g

No other components were detected in these samples.



PREENMOOD FABORATORIE

GRU: del

Copy: (b) , Handy & Harman Tube Co.; (b) (4) , Camdel Metals Corp.

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903 E. BALTIMORE PIEE

KENNETT SQUARE. PA. 19348 PHONE: \$15-868-7295

TO:

SMC Martin P.O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.d.

DATE:

December 27, 1984

GREENWOOD N. GL 6485

SUBJECT:

Examination of soil samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6485-1: 4th Pass #2 12/20/84 5:50 pm

GL 6485-2: 5th Pass #1 9:30 a.m. 12/21/84

SUMMARY:

These two samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

SAMPLE IDENTITY

TRICHLOROETHYLENE

4th Pass #2

19 ng/gram

5th Pass #1

10 ng/gram

GREENWOOD LABORATORIES

GRU: del

Copy: (b

, Handy & Harman; (b) (4)

Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19346

PHONE: 215-286-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

December 31, 1984

GREENWOOD NO. GL 6489

SUBJECT:

Examination of soil samples for trichloroethylene and related

compounds.

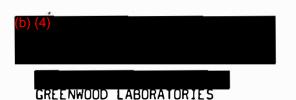
SAMPLES:

GL 6489-1 thru -3: Camdel Metals (listed below).

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6489-	Sample Ident	ity	C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ C1 ₄
1	5th Pass #2 12/16/84	10:50 pm	17 ng/g	0	0	0
2	6th Pass #1 "	2:10 pm	24 ng/g	0	0	0
3	6th Pass #2 "	3:25 pm	16 ng/g	0	0	0



Copy: (b) (4) , Handy & Harman Tube Co.; (b) (4) , Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: 215-356-7292

10:

P.O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

December 31, 1984

GREENWOOD NO. GL 6491

SUBJECT:

Examination of soil samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6491-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedures. The analytical results are as follows:

GL # 6491-	Sample Iden	iity	C ₂ HCl ₃	CH3CC13	CHC1 ₃	C ₂ C1 ₄
1	7th Pass #1 12/26/84	4 5:05 pm	17 ng/g	0	0	0
2	7th Pass #2 "	9:50 am	20 ng/g	0	0	0
3	8th Pass #1 "	12:00 noon	19 ng/g	0	0	0
4	8th Pass #2 "	1:50 pm	21 ng/g	0	0	0

GREENWOOD LABORATORIES

GRU: del

Copy:

, Handy & Harman Tube Co.; (b) (4)

, Camdel Metals Corp.

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ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

January 4, 1985

GREENWOOD NO. GL 6495

SUBJECT: Examination of soil and water samples for trichloroethylene and re-

lated compounds.

SAMPLES: GL 6495-1 thru -8: Camdel Metals Corp. (listed below)

SUMMARY:

These samples have been examined by gas chromatography with electron capture detection, using the previously described methods for soil and water samples. The analytical results are as follows:

GL 3 6495-		Sample Identity	C2 ^{HC1} 3	CH3CC13	CHC13	C ₂ Cl ₄
1	12/27/84	9th Pass #1 3:45 am (soil)	7 ng/g	0	0	0
2	**	9th Pass #2 4:35 am "	36 ng/g	0	0	0
3	12/28/84	10th Pass #19:05 am "	7 ng/g	0	0	0
4	85	10th Pass #2 11:10 am "	12 ng/g	0	0	0
5	*	11th Pass #1 1:40 pm "	9 ng/g	0	0	0
6	H	11th Pass #2 3:52 pm "	0	0	0	0
7	H	RW-1 5:45 pm (water)	4.3 ug/L	0	0	1.6ug/L
8		MW-1 6:00 pm (water)	3.7 ug/L	0	0	1.4 ug/L



GREENWOOD LABORATORIES

gru; del

copy: (b) (4) , Handy & Harman Tube co.; (b) (4) ■. Vaughn, Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIEE

FHONE: \$15-888-7292

the of

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

January 4, 1985

GREENWOOD NO. GL 6496

SUBJECT: Examination of soil samples for trichloroethylene and related compounds.

SAMPLES: GL 6496-1 thru - 5: Camdel Metals Corp. (listed below)

SUMMARY:

These samples have been examined by gas chromatography with electron capture detection using the previously described procedure. The analytical results are as follows:

GL # 6496-		Sample Ide	ntity	C2 ^{HC1} 3	CH3CC13	CHC1 ₃	
1	12/19/84	12th Pass	0 1 9:15 am	28 ng/g	0 ,	0	0
2	н	12th Pass	0 2 9:50 am	25 ng/g	0	0	0
3	Ħ	13th Pass	Powder 11:35 am	32 ng/g	0	0	0
4	•	13th Pass	0 1 12:00 n	28 ng/g	0	0	0
5	*	13th Pass	#2 1:50 pm	19 ng/g	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4) _____, Handy & Harman Tube Co.; (b) (4) ____ Vaughn, Camdel Metals

APPENDIX B

ANALYTICAL CHEMISTS AND CONSULTANTS



DOS E. BALTIMORE PIRE

EENNETT BQUARE. PA. 19348 PHONE: 215-388-7295

January 4, 1985

(b) (4)

SMC Martin P.O. Box 859 Valley Forge, PA 19482

Dear Steve:

This letter will be an attempt to respond to our telephone conversation this morning regarding accuracy and lower limits of detection, specifically in the analytical measurements applied to the series of soil samples most recently from Camdel Metals Corporation.

To assist me in the discussion, which I will try to make brief, I am including copies of a document in publication which paraphrases parts of a paper from Analytical Chemistry, i.e. ACS Committee on Environmental Improvements, "Principles of Environmental Analysis,", Anal. Chem., 55, 2210-2218 (1983).

To help you recognize the nature of our problem with these samples, I am including copies of chromatograms which hopefully will illustrate the nature of the analytical problem. You will note, on these chromatograms there is an analog chart and also computations. Our normal practice is to use the computed values which are determined from a prior calibration of the system with standards of known composition. This method of measurement is applied to extracts either from water or from soils. However, in the case of water samples, the extract is a 10-fold concentration from the original sample, while with soil samples the extract is only a 2-fold concentration. The calibration values actually pertain to the extract solution which is measured. For water analyses then, the computed value is divided by 10. In the case of soil samples, it is only divided by 2. Therefore, a stated minimum detectable concentration from a water sample, relative to that sample, is approximately 1 ppb. The corresponding circumstance in the case of soil samples means that minimum is approximately 5 ppb. In either case, however, the actual computer readout would be 10 ppb. For the computer to sense the peak which corresponds to the component of concern requires first a specified minimal area and second, a specified minimum rate of change of the analog signal at the points where the signal for that component starts and ends. A consequence of this is that there are circumstances at or near the minimum detectable level in which the computer fails to recognize the component peak, even though visually we can recognize its presence. When this happens, we make an estimation of the amount present, based upon the height of the peak which the computer missed relative to the height of the smallest peak which the computer, in fact, detected.

These items are pointed out in copies of 2 chromatograms. One shows a calculated quantity and the second shows an uncalculated quantity which is obviously still recognizable on the analog chart or graph. This means that at or near the

Steven Johnson SMC Martin

January 4, 1985

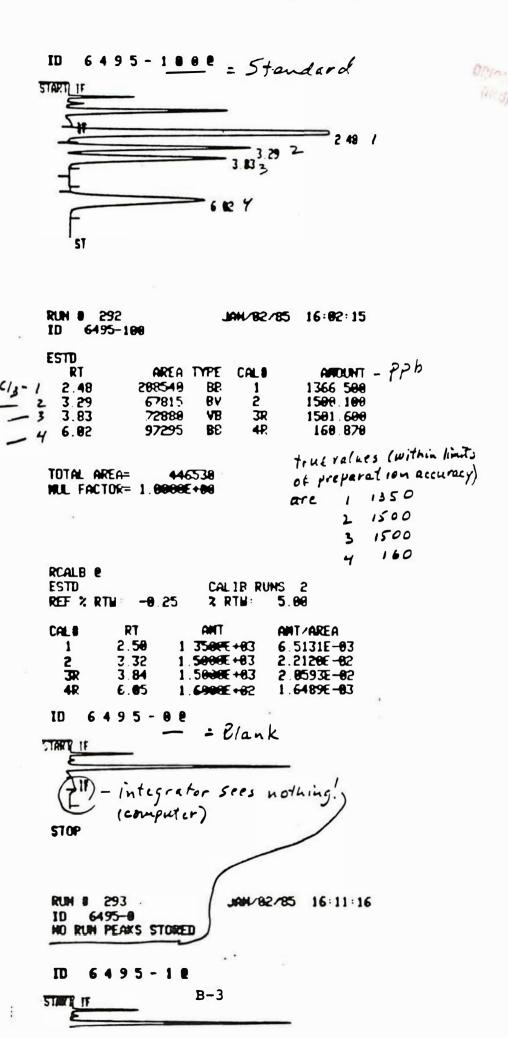


minimum detectable level, specifically in the case of soil samples, a given value, such as 5 or 7 ng/g (ppb) may in fact be a value anywhere from one-half to twice that amount. When the computer detects the component, the error still may range by 30% around the computed value. This is simply because of the limited ability to detect the precise moment in time when the signal departs from a baseline and again returns to it. To further assist in understanding this, I am also including a chromatogram of a standard where it is clearly more obvious how sharply the baseline changes when a significant quantity of component reaches the detector and also when it leaves.

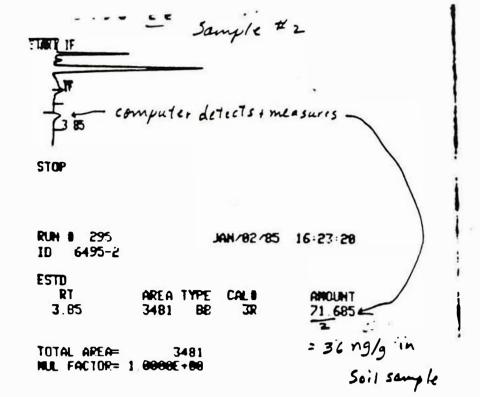
To put this perhaps in a slightly more practical framework: there is some concern in the case of drinking water for concentrations down to the range of a few parts per billion (one value given us is 3.5). This is because people are ingesting significant volumes of water over a long period of time. On the other hand, ppb levels in soil, such as we are dealing with in this case, after your treatment of the soil, are so low as to be highly unlikely to constitute any hazard since (a) the material is not being consumed directly by people and, (b) what remains after the very significant treatment you have given the soil is likely to be rather tightly adsorbed and consequently released slowly over a long period of time in concentrations which will then be essentially undetectable, even with the magnificent sensitivity levels available with current analytical instruments.

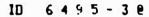


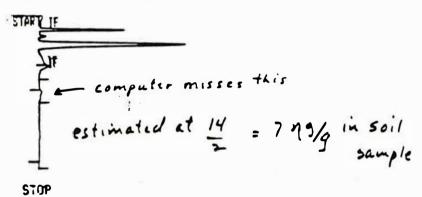
GRU: del Enclosures



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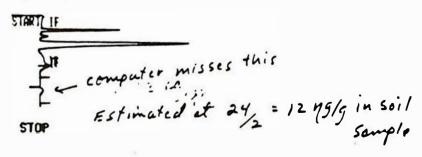






RUN 8 296 JAN/82/85 16:29:38 ID 6495-3 HD RUN PEAKS STORED

10 6495-48



RUN 0 297 JAN/82/85 16:38:85 ID 6495-4 NO RUN PEAKS STORED B-4 SMC Martin Inc. 8713REF/1

January 11, 1985 Ref: #8713-040-94003

- 1. When measurements are made of components at or near the detection limit, a certain number of analyses can be expected to be zero. As a consequent of this point, and the range of variability commonly encountered in trace level measurements, data points should not be omitted when evaluating a set of data. The only basis for deleting items of data will be the analyst's observation of a specific error or a mistake or malfunction occurring in the processing or analysis of a sample. Since most of these observations will come before the analysis is complete, that particular analysis should actually be discarded before a final analytical value is obtained. However, if it is in the chromatographic analysis step, the system normally will carry through the analysis to provide a record. This record should be marked with the analyst's observation of a malfunction or error and that data deleted from consideration whether or not it appears to conform with the balance of the analytical data.
- because the computer or calculator provides 4, 5 or 6 digits does not imply that those are significant numbers. For example, reporting the concentration of a pollutant in water at 3.082 ug/L is obviously unrealistic. Most analyses at this concentration level will likely be accurate only to one significant figure. A computer report which indicates such a value might logically be rounded by the intelligent analytical chemist to 3 ug/L for his report. It is important that an analytical report not imply limits of accuracy better than can be defended by statistical means. It is of significant importance that the accuracy limits or the range of variation of any given analysis be stated with the report. Without this, persons untrained in science, but having a responsibility in regulatory or legal actions, may easily interpret the value of 3.082 as a numerically exceeding a limit specified as 3.0.

REFERENCE 2F

SMC Martin

A Division of Science Management Corporation 900 W. Valley Forge Road PO. Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700



April 23, 1985 Ref: 8713-040-94004

Mr. Randy McAlister
Department of Natural Resources
& Environmental Control
Water Resources Section
89 Kings Highway
P. O. Box 1401
Dover, DE 19903

Dear Randy:

I have enclosed a copy of the Camdel Metals Ground-Water Recovery project chemical results for April 18, 19, 1985. I will keep you informed on our progress and additional analytical results when available.

Sincerely,

SMC MARTIN INC.

(b) (4)
(b) (4)
Hydrogeologist

GJB:rm Enclosure 8713L1J RECEIVED

APR 24 1985
IRLIY)
WATER SUPPLY BRANCH

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 315-886-7295

TO:

SMC MARTIN P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

April 22, 1985

GREENWOOD NOS. GL 6594 & 6597

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6594-1 thru -6: Camdel Metals (rec'd 4/18/85)

GL 6597-1 thru -3: Camdel Metals (rec'd 4/19/85)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6594-	Sample Identity	C2HCl3	CH3CC13	CHC13	C ₂ C1 ₄
0374					
1	12 Pond 4/18/85 12:00	0	0 0	0	0
2	2 RW-1 " 14:38	_1 ug/ <u>L</u>	0	0	1.1 ug
3	2 Pond Ground-Water 4/18 14:41	0	0	0	0
4	1 MW 19 4/18/85 11:35	~1 ug/L	2.0 ug	0	0
5	1 RW-1 " 12:35	-2 ug/L	3.4 ug	0	1.8 ug
6	1 S-P Interface 4/18/85 14:40	0	0	0	0
GL # 6597-					
1	3 w RW-1 4/19/85 8:05	-1 ug/L	0	n	1 0
2	2 SP Spray-Pond Interface 4/19/85	0	0 4	0	1.0 ug
3	3P Pond 4/19/85 8:10	0	0	0	0 1/2-7
		1 11	1 1 100	· ·	100
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		_			
		GRE	ENWOOD LABO	RATORIES	

, Handy & Harman Tube co.; (b) (4) Vaughn, Camdel Metals

SMC Martin

A Division of Science Management Corporation 900 W. Valley Forge Road PO. Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 for 5/9/85 FILE

May 7, 1985

Ref: \$8713-040-94004

Mr. Randy McAlister
Department of Environmental Resources
and Environmental Control
Water Resources Section
89 Kings Highway
P.O. Box 1401
Dover, DE 19903

Dear Mr. McAlister:

Enclosed please find copies of the current analyses regarding the groundwater recovery project being conducted at Camdel Metals located in Camden, Delaware. The recovery program was initiated on April 18, 1985. 1,099,600 gallons have been recovered and treated as of May 1, 1985. Sampling frequencies for the recovery well and spray interfaces, as well as the pond and monitor well nineteen have been daily for the first eleven days, 4/18 - 4/28, followed by tri-weekly sampling for the week of 4/29 - 5/3. Bi-weekly sampling will be conducted for the remainder of the recovery program. I will continue to forward analytical results to you as they become available. If you have any questions or concerns, please don't hesitate to call.

Soil Scientist

SJ:njs Enclosure 8713LlN RECEIVED

WAY 9 1985

WATER SUPPLY BRANCH

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

SMC MARTIN

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

April 24, 1985

GREENWOOD NO. GL 6600

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6600-1 thru -9: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL #- 6600-	Sample Identity	C2HC13	CH3CC13	CHC13	C2 ^{C1} 4
			R		
1 4 SP 4/20/8	6:40 pm S-P Interface	7.1 ug/L	0	0	0
2 3 SP 4/20/85	8:00 pm S-P Interface	32 ug/L	0	0	0
3 4 P "	8:00 pm Pond	0	0	0	0
4 4 W "	8:00 pm RW-1	21 ug/L	0	0	0.8 ug/L
5 5 P 4/21/85	5:40 pm Pond	7.8 ug/L	0	0	0
6 5 W "	5:40 pm RW-1	13 ug/L	0	0	0.7 ug/L
7 6 P 4/22/85	12:50 pm Pond	0	0	0	0
8 6 W "	12:46 pm RW-1	4.6 ug/L	0 *	0	0.A ug/L
9 5 SP "	12:55 S-P Interface	-2 ug/L	0	0	0

GREENWOOD LABORATORIES

GRU: del

Copy:

, Handy & Harman; Millard (b) (4), Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

PHONE: 215-888-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

April 29, 1985

GREENWOOD NO. GL 6603 & 6605

")

SUBJECT:

Examination of water samples for trichloroethylene and related compounds.

SAMPLES:

GL 6603-1 thru -9: Camdel Metals (rec'd 4/25/85 - listed below)

GL 6605-1 thru -5: Camdel Metals (rec'd 4/26/85 - "

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL #	Comple Ideat/A	C2HC13	CH3CC13	CHC1 ₃	C2C14
6603-	Sample Identity				
1	7 W RW-1 4/23/85 17:45	6.7 ug/L	0	0	0.7 ug/L
2	6 SP Spray-Pond INterface 17:45 4/23	0	0	0	0
3	7 P Pond 4/23/85 17:45	5 ug/L	0	0	0
4	8 W RW-1 4/24/85 13:20	16 ug/L	0	0	0.7 ug/l
5	7 SP Spray Pond 4/24/85 13:35	24 ug/L	0 **	0	0
6	8 P Pond 4/24/85 13:30	10 ug/L	0	0	0 ,
7	Well 4 4/24/85 13:48	9.2 ug/L	0	0	0
8	Well 4A " 13:48	9.0 ug/L	0	0	0
9	Well 7 " 14:35	10 ug/L	0	0	0
GL # 6605-			3		
1	S-1 Spray 4/25/85 6:50 pm	-2 ug/L	0	0	0
2	9 RW-1 Recovery Well 4/25 6 pm	67 ug/L	0	0	0.6 ug/l
3	S-2 Spray 4/26/85 10:30-10:45 pm	5.3 ug/L	0	. 0	0
4	10 RW-1 Recovery Well 4/26/85 10:04 am	120 ug/L	0	0	0.8 ug/L
5	2 W 19 Well 19 4/26/85 10:29 am	0	0	0	0



GRU: del

Copy: (b) (4)

, Handy & Harman; M. (b) , Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-868-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

May 1, 1985

GREENWOOD NO. GL 6607

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6607-1 thru -4: Camdel Matals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6607-	Sample Identity	C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	^C 2 ^{C1} 4
1	Water sample Recovery Well 4/27/84 8:15 am	160 ug/L	0	0	0.9 ug/L
2	Water from Ground Spray 9:50 am	8.1 ug/L	0	0	0
3	12 RW1 (CW) 4/29/85 2:40 pm	190 ug/L	0	0	1.0 ug/L
4	Lawn Spray #4 (GW) 4/29/85 2:53 pm	13 ug/L	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4)

, Handy & Harman; Millard (b) (4)

, Camdel Metals Corp.

SMC Martin

A Division of Science Management Corporation

900 W Valley Forge Road PO Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 Orinital (lad)

June 14, 1985

Ref: 8713-040-94003

RECEIVED

Mr. Randy McAlister
Department of Environmental Resources
& Environmental Control
Water Resources Section
89 Kings Highway
P. O. Box 1401
Dover, DE 19903

JUN 17 1985

WATER SUPPLY BRANCH

Dear Mr. McAlister:

Enclosed please find copies of the analyses regarding the ground-water recovery program currently being conducted at Camdel Metals located in Camden, Delaware. As of June 11, 1985, 4,150,000 gallons have been recovered and treated. Sampling frequencies for the recovery well and spray interfaces, as well as the pond and Monitor Well 19, located downgradient from the ground spray area, have been biweekly since May 3, 1985. Contaminant concentrations from the recovery well have decreased from a high of 190 ppb Trichloroethylene (TCE), April 29, 1985 to a current level of 47 ppb TCE as of June 7, 1985. Biweekly sampling will continue for the remainder of the recovery program. As referenced in your letter of March 28, 1985, we will terminate the recovery program when contaminant levels have stabilized in the 25-50 ppb range. I will continue to forward analytical results as they become available.

If you have any questions or concerns, please do not hesitate to call.

Sincerely,

SMC MARTIN INC.



SEJ:rm 8713LJ1

cc: Tom Walsh
Bob Zimmerman

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

(b) (4)

SMC MARTIN
P. O. Box 859

Walla 5.

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

May 9, 1985

GREENWOOD NO. 6618

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6618-1 thru -3: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6618-	Sample Identity	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	^C 2 ^{C1} 4
1	RW-1-5-7 Recovery Well-1	110 ug/L	0	0	1.2 ug/L
2	Spray 5-7 Lawn Spray Interface	5.4 ug/L	0	0	0
3	MW-19-5-7 MW19	0	0	0	0



GREENWOOD LABORATORIES

Copy: (b) (4) , Handy & Harman; (b) (4) , Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

, Ph.D.

DATE:

May 15, 1985

GREENWOOD NO GL 6622

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6622-1 thru -4: Camdel Metals (listed below)

SUMMARY:

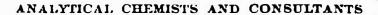
These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL ₽		C2HCl3	CH_CCl_	CHCl	C2C1"
6622-	Sample Identity				
1	RW-1 5/10/85	91 ug/L	0	0	1 4 ug/L
2	Ground Spray 5/10/85	4.6 ug/L	0	0	0
3	Pond 5/10/85	0	0	0	0
4	MW-19 5/10/85	0	0	0	0



, Handy & Harman; (b) (4)

, Camdel Metals



903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348 PHONE: 215-888-7295

TO:

P O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE .

May 15, 1985

GREENWOOD NO. GL 6625

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds

SAMPLES.

GL 6625-1 thru -4: Camdel Metals (listed below),

SUMMARY

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows.

GL # 6625-	Sample Identity	C ₂ HC1 ₃	CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	5/14/85 RW-1	100 ug/L	0	0	1.5 ug/L
2	" Ground Spray	35 ug/L	0	0	0
3	" Pond	0	0	0	0
4	" MW-19	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4)

, Handy & Harman; (b) (4)

Camdel Metals



OPICH AL

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE .

May 22, 1985

GREENWOOD NO GL 6630

SUBJECT .

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6630-1 thru -6: Camdel Metals

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL #			C_2HC1_3	CH3CC13	CHC1 ₃	C2C14
6630-		Sample Identity				
1	5/20/85	RW-1 12·05 pm	75 ug/L	0	0	1.6ug/L
2	"	Ground Spray 12:05 pm	~2 ug/L	0	0	0
3	"	Pond 12:15 pm	0	0	0	0
4	n	MW-19 1:05 pm	0	0	0	0
5	5/17/85	Ground Spray	16 ug/L	0	0	0
6	"	Pond	14 ug/L	0	0	0

GREENWOOD LABORATORIES

GRU: del

Handy & Harman; (b) (4) Camdel Metals Corp. Copy: (b) (4)

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19345

PHONE: 215-888-7295

TO:

SMc Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

May 28, 1985

GREENWOOD NO. GL 6633

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6633-1 through -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL #	Sample Identity	C2HC13	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1 5/24/85 11:15 pm	67 ug/L	С	0	2.3 ug/L
2	Ground Spray 5/24 11:20 pm	_1 ug/L	0	0	0
3	Pond 5/24 11:25 pm	6.5 ug/L	0	0	0
4	MW-19 5/24 11:34 pm	0	0	0	0

GREENWOOD LABORATORIES

GRU: del

Copy:

, Handy & Harman; (b) (4)

, Camdel Metals



903 E. BALTIMORE PIKE

Ph.D.

KENNETT SQUARE. PA. 19348PHONE: 215-888-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

May 31, 1985

Valley Forge, PA 19482

FROM:

DATE:

b) (4)

-

GREENWOOD NO. GL 6636

SUBJECT:

Examination of water samples for trichloroethylene and re-

lated compounds.

SAMPLES:

GL 6636-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # <u>6636</u> -	Sampl	e Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	5/28/85 2:07 pm	65 ug/L	0	0	1.7 ug/L
2	Ground Spray	" 2; 10 pm	4.5 ug/L	0	0	0
3	MW~19	" 2:55 pm,	0	0	0	0
4	Pond	" 2:00 pm	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4) , Handy & Harman Tube Co.; (b) (4) , Camdel Metals



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-888-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

June 4, 1985

GREENWOOD NO. GL 6640

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6640-1 thru -6: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6640-	Samp	le Iden	tity		CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	RW-1	5/31/85	1:15 p	m 64 ug	g/L 0	0	1.2 ug/L
2	Ground Spray	u	1:20 pr	m O	0	0	0
3	Pond	н	1:10 pr	m O	0	0	0
4	MW-19	11	2:05 p	m O	0	0	0
5	MW-14	11	2:30 pr	m O	0	0	0
6	MW-15	11	2:20 pr	m O	0	0	0

GREENWOOD LABORATORIES

GRU: del

Copy: (b) (7)(C), (b) (4), Handy & Harman; (b) (4)

, Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4) SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4) , Ph.D.

DATE:

June 5, 1985

GREENWOOD NO. GL 6443

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6443-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6443-			C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1-6/4	Recovery Well #1	78 ug/L	0	0	1.6 ug/L
2	FS-6/4	Field Spray	0	0	0	0
3	P-6/4	Pond	8.2 ug/L	0	0	0
4	MW-19-6/4	Monitor WEll #19	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4), Handy & Harman Tube Co.; (b) (4), Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. 14. 19348 PHONE: 215-888-7298

TO:

<mark>(b)(4)</mark> SMC Martin

P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4) , Ph.D.

DATE:

June 11, 1985

GREENWOOD NO. GL 6647

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6647-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously des cribed procedure. The analytical results are as follows:

GL # 6647-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1-6/7 12:38 pm	47 ug/L	0	0	1.7 ug/L
2	Pond 6/7 12:48 pm	9.0 ug/L	0	0	0
3	SP-6/7 Spray Field 12:43 pm	0	0	0	0
4	MW-19-6/7 2:00 pm	0	0	0	0



GRU: del

Copy: (b) (4), Handy & Harman Tube Co.; (b) (4)

, Camdel Metals Corp.

SMC Martin

A Division of Science Management Corporation 900 W Valley Forge Road PO Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700



July 19, 1985 Ref: 8713-040-94003

Mr. Randy McAlister
Department of Environmental Resources
and Environmental Control
Water Resources Section
89 Kings Highway
P.O. Box 1401
Dover, DE 19903

Dear Mr. McAlister:

Enclosed please find copies of the analyses regarding the groundwater recovery program being conducted at Camdel Metals. As of July 16, 1985, 6,933,000 gallons have been recovered and treated. Contaminant concentrations from the recovery well have remained below 50 ppb since June 28, 1985. We are proposing to terminate the recovery program as of July 30, 1985 should contaminant concentrations remain stabilized below 50 ppb. In the event that contaminant concentrations do not remain stabilized below 50 ppb, the recovery program will continue until the desired stabilized concentrations are achieved. I will continue to forward analytical results, regarding the recovery program, for the remainder of the month or until stable conditions are achieved.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

SMC MARTIN INC.

Soil Scientist

SEJ/elq Enclosure

cc: Tom Walsh
Bob Zimmerman
Mike Apgar

RECEIVED

JUL 23 1985

WATER SUPPLY BEANCH

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-888-7298

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

June 14, 1985

GREENWOOD NO. GL 6650

SUBJECT:

Examination of water samples for trichloroethylche and related

compounds.

SAMPLES:

GL 6650-1: MW-19-6/11 1:22 pm

(Camdel Metals Corporation)

GL 6650-3: P-6/11 Pond 1:05 pm

GL 6650-2: RW-1-6/11 1:43 pm

GL 6650-4: LS-6/11 Lawn Spray 1:49 pm

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6650-			C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ C1 ₄
1	6/11/85	MW-19	0	0	0	0
2	H	RW-1	60 ug/L	0	0	1.7 ug/L
3	n	Pond	7.1 ug/L	0	0	0
4	•	LS (Lawn Spray)	6.1 ug/L	0	0	0

GREENWOOD LABORATO IES

GRU: del

Copy:

, Handy & Harman; (b) (4)

, Camdel Metals

J. woon onvolutories

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348
PHONE: 215-888-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA

19482

FROM:

Ph.D.

DATE:

June 19, 1985

GREENWOOD NO. GL 6655

SUBJECT:

Examination of water samples for trichloroethylene and related com-

pounds.

SAMPLES:

GL 6655-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6655-	Sample Identity		C2HC13	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	6/14/85	RW1-6/14 1:12 pm	59 ug/L	D	0	1.9 ug/L
2	н	P-6/14 Pond 1:16 pm	0	0	0	0
3	n	LS-6/14 Lawn Spray	0	0	0	0
4	н	MW19-6/14 1:28 pm	0	0	0	0



GRU: del

Copy: (b) (4) , Handy & Harman Tube Co.; (b) (4) , Camdel Metals Corp.

Yreenwooa ≪avoratories

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIRE

EENNETT SQUARE. PA. 19348 PHONE: \$15-268-7295

TO:

b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

GREENWOOD NO. GL 6658

DATE:

June 19, 1985

Examination of water samples for trichloroethylene and related

SUBJECT: Examinat

compounds.

SAMPLES:

GL 6658-1 thru -4: Camdel Metals (listed below)

, Ph.D.

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL ∮ 6658-		Sample Identity	C2HC13	сн ₃ сс1 ₃	CHC1 ₃	C ₂ Cl ₄
1	6/18/85	LS-6/18 Lawn Spray 11:55	0	0	0	0
2		MW19-6/18 12:51	0	0	0	0
3	н	RW1-6/18 11:50	54 ug/L	0	0	1.6 ug/L
4	н	P-6/18 Pond 12:02	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4) Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348 PHONE: 215-388-7295

TO:

SMC Martin

P. D. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

June 26, 1985

GREENWOOD NOS. GL 6663 & 6668

SUBJECT:

Examination of water samples for content of trichloroethylene and

related compounds.

SAMPLES:

GL 6663-1 thru -4: Rec'd 6/21/85 pm (listed below) Camdel Metals

GL 6668-1 thru -4: " 6/25/85 pm ("

m)

SUMMARY:

These two groups of samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6663-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ C1 ₄
1	RW1-6/21 12:18 pm	64 ug/L	0	0	1.8 ug/L
2	PS-6/21 Pond Spray 1:06 pm	0	0	0	0
3	P-6/21 Pond 1:11 pm	0	0	0	0
4	MW19-6/21 1:22 pm	0	0	0	0
2. 4					
GL € 6668-					
1	RW1-6/25 1:11 pm	55 ug/L	0	0	0
2	MW19-6/25 1:37 pm	0	0	0	0
3	P-6/25 Pond 1:17 pm	0	0	0	0
4 *	LS-6/25 Lawn Spray 1:34 pm	7.8 ug/L	0	0	0

GREENWOOD LABORATORIES

GRU: del

, Handy & Harman Tube Co.; (b) (4) , Camdel Metals Copy:

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

ELNNETT SQUARE. PA. 19348 FBONE: 215-888-7298

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

July 2, 1985

GREENWOOD NO. GL 6673

SUBJECT: Examination of water samples for trichloroethylene and related compounds.

SAMPLES: GL 6673-1 thru -4: Camdel Metals Corp.

SUMMARY:

These samples have been exmained by gas chromatography using the previously described procedure. The analytical results are as follows:

GL € 6673-	Sampl	e Identity	ity C ₂ HCl ₃		CHC13	C ₂ Cl ₄
1	RW-1 6/28/85	12:20 pm	46 ug/L	0	0	1.8 ug/L
2	LS-6/28 "	12:28 pm	13 ug/L	0	0	0
3	MW-19 "	12:44 pm	0	0	0	0
4	Pond 6/28/85	12:50 pm	21 ug/L	0	0	0



GRU: del

, Handy & Harman Tube Co.; (b) (4) Copy: , Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIEE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

July 9, 1985

GREENWOOD NO. GL 6675

SUBJECT:

Examination of water samples for trichloroethylene and related compounds.

SAMPLES:

GL 6675-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows.

6675-	Sample Identity			C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃		
ī	R-7/2	7/2/85	RW-1	1:14 pm	50 ug/L	0	0	2.3 ug/L
2	LS-7/2	H	Lawn Spray	/1:17 pm	0	0	0	0
3	P-7/2	н	Pond	1:25 pm	4.6 ug/L	0	0	0
4	MW-7/2	•	Mw-19	1:35 pm	0	0	0	0

b) (4)

GREENWOOD LABORATORIES

CRU: del

Copy: (b) (7)(D), (b), Handy & Harman Tube Co.; (b) (4) , Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE, PA. 19348 PHONE: 215-888-7293 (Rod)

TO:

b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

July 10, 1985

GREENWOOD NO. GL 6683

SUBJECT:

Examination of water samples for trichloroethylene and related compounds.

SAMPLES:

GL 6693-1 thru -8: Camdel Metals (7/5/83 & 7/9/83)(listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL € 6683-		Samp	le Identit	У	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	R-7/5	7/5/85	12:13 pm	RW-1	48 ug/L	0	0	1.9 ug/L
2	LS-7/5	**	12:30 pm	Lawn Spray	0	0	0	0
3	P-7/5	n	12:16 pm	Pond	0	0	0	0
4	MW-7/5		1:11 pm	MW-19	0	0	0	0
5	R-7/9	7/9/85	12:51 pm	RW-1	36 ug/L	0	0	2.5 ug/L
6	LS-7/9	•	12:56 pm	Lawn Spray	9 ug/L	0	0	0
7	P-7/9	H	1:13 pm	Pond	0	0	0	0
В	MW-7/9	41	1:23 pm	MW-19	0	0	0	0
							(b) (4))

GREENWOOD LABORATORIES

GRU:del

Copy: (b) (4) , Fandy & Harman Tube Co.; (b) (4) (b) (4) , Camdel Metals



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: \$15-888-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4

, Ph.D.

DATE:

July 16, 1985

GREENWOOD NO. GL 6685

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6685-1 thru -7: Camdel Metals (listed below).

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6685-	Sa	mple Iden	tity	C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	7/12/85	12:13 pm	43 ug/L	0	0	2.3 ug/L
2	Ground Spray	m	12:15 pm	0	0	0	0
3	Pond	•	12:20 pm	0	0	0	0
4	MW-4	•	1:55 pm	13 ug/L	0	0	0
5	MW-17		1:20 pm	0	0	0	0
6	MW-19	et	1:35 pm	0	0	0	0
7	MW-7	H	2:15 pm	83 ug/L	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4) , Handy & Harman Tube Co.; Camdel Metals, (b) (4)

900 W. Valley Forge Road P.O. Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 or 783-7480

November 15, 1985 Ref: 8713-040-94003

Mr. Michael Apgar
Department of Natural Resources
and Environmental Control
Water Resources Section
89 Kings Highway
P.O. Box 1401
Dover, DE 19903



Dear Mike:

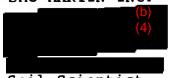
Enclosed please find copies of the analyses for the ground water recovery program being conducted at Camdel metals. As of November 4, 1985, 14,424,600 gallons have been recovered and treated. Contaminant concentrations from the recovery well have remained below 40 ppb since August 30, 1985 and have continued to decline to a low of 17 ppb as of November 4, 1985. Weekly sampling will continue until contaminant concentrations in the recovery well have stabilized at or below 25 ppb.

A minor spill was reported by plant personnel during the week of August 19, 1985. Plant personnel discovered the leak and quickly replaced the faulty condenser. Contaminant concentrations in the recovery well reflect this spill and its subsequent recovery. I will continue to forward analytical results until the desired concentrations are achieved.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

SMC MARTIN INC.



Soil Scientist

SEJ:njs 8713/SEJL1N Enclosure

cc: (b) (4) - Camdel Metals Corp.
Bob Zimmerman - Handy & Harmon Tube Co., Inc.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348
PHONE: 215-388-7295

ON mount

TO:

(b) (4) SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

July 22, 1985

GREENWOOD NO. GL 6690 & GL 6696

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6690-1 thru -4

Camdel Metals, 7/16/85, listed below

GL 6696-1 thru -4

", 7/19/85, "

11

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedures. The analytical results for these two sets of samples are as follows:

GL # 6690-	Sample Identity	C ₂ HC1 ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1 7/16/85	44 ug/L	0	0	2.2 ug/L
2	Ground Spray 7/16/85	0	0	0	0
3	Pond 7/16/85	0	0	0	0
4	MW-19 "	0	0	0	0
GL # 6696-					
1	RW-1 7/19/85	43 ug/L	0	0	2.2 ug/L
2	Pond "	5.3 ug/L	0	0	0
3	Ground Spray 7/19/85	0	0	0	0
4	MW-19 7/19/85	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: R. Zimmerman, Handy & Harman; (b) (4) Common , Camdel Metals

SMC Martin

900 W. Valley Forge Road P.O. Box 859 Valley Forge, Pennsylvania 19482 Telephone 215 265-2700 or 783 7480

February 19, 1986 Ref: 8713-040-94003

Mr. Michael Apgar
Department of Natural Resources
& Environmental Control
Water Resources Section
89 King Highway
P. O. Box 1401
Dover, DE 19903

Dear Mike:

Enclosed please find copies of the analyses for the ground-water recovery program being conducted at Camdel Metals. These analyses include weekly results from December 2, 1985 through the combined quarterly and weekly sampling of February 3, 1986 and compliment the previous results submitted on November 15, 1985. As of February 13, 1986, 19,402,600 gallons have been recovered and treated. Although contaminant concentrations in the recovery well have remained below the target concentration of 25 ppb since January 24, 1986, contaminant concentrations in Monitor Wells 4 and 7 are in excess of the agreed upon target concentration (50 ppb). Contaminant concentrations in these wells are not reflected in contaminant concentrations in the recovered water due to dilution and volatilization factors. Weekly sampling of the recovery well, ground spray, pond, Monitor Well 19 and quarterly sampling of Monitor Wells 4, 7, and 17 will continue. I will continue to forward analytical results until the desired concentrations are achieved.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely, SMC MARTIN INC.

(b)(4)
Soil Scientist

SEJ:rm Enclosures 8713:SEJL1J

cc: Tom Walsh
Bob Zimmerman

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-266-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

December 12, 1985

GREENWOOD NO. GL 6829

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6829-1 thru -4: Camdel Metals Corporation (listed below).

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6829-		Sample Identity	C2HC13	CH3CC13	CHC1 ₃	C ₂ Cl ₄
1	12/9/85	R W - 1	27 ug/L	0	0	2.0 ug/L
2	11	Ground Spray	7.4 ug/L	10 ug/L	0	0.6 ug/L
3	11	Pond	2.6 ug/L	0	0	0
4	11	MW-19	0	0	0	0



GRU: del

Copy:

, Handy & Harman; (b) (4)

, Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC MARTIN
P. O. Box 859

Valley Forge, PA 19482

FROM:

) (4) Ph.D.

DATE:

January 6, 1986

GREENWOOD NO. GL 6848

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6848-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6848-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	MW-19 1/3/86	0	0	0	С
2	Pond "	- 2 ug/L	0	0	C
3	Ground Spray "	- 2 ug/L	0	0	0
4	RW-1 "	25 ug/L	0	0	1.7 ug/L



GREENWOOD LABORATORIES

GRU: del

Copy: R. (b) (4) Handy & Harman Tube Co.; (b) (4)

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIEE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

Steven Johnson

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

Gerald R. Umbreit, Ph.d.

DATE:

December 23, 1985

GREENWOOD NO. GL 6839

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6839-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6839-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	12/20/85 RW-1	26 ug/L	0	0	1.9 ug/L
2	" Ground Spray	6.9 ug/L	G	0	0.7 ug/L
3	" Pond	3.5 ug/L	0	0	0.2 ug/L
4	" MW-19	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: R. Limmerman, Handy & Harman Tube co.; Millard Vaughn, Camdel Metals Corp.



903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-888-7205

TO:

(b) (4)

SMC MARTIN P.O. Box 859

Valley Forge, PA 19482

FROM:

o) (4)

, Ph.D.

DATE:

November 27, 1985

GREENWOOD NO. GL6817

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL-6817-1 thru -4 Camdel Metals Corp. (listed below).

SUMMARY:

These samples were examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL #			C2HCl3	CH3CC13	CHC13	C2C14
6817-	Sample Identity					
1	RW-1 Corner Building 1	1/20/85	27 Jug/L	0	0	2.1 µg/L
1						,
2	Pond Pond	tt	ع/وبر 2.5	4.8 p/L	0	0
3	MW-19 Field Well	.,	0	0	0	0
4	Ground Spray Sprinkler		ع/وسر 2.0	0	0	1/وبر2.0

(b) (4)

GREENWOOD LABORATORIES

GRU/mjl

Copy: (b) (4); M(b) (4) V(b) (4), Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC MARTIN
P. O. box 859

Valley Forge, PA

19482

FROM:

(b)

, Ph.D.

DATE:

December 2, 1985

GREENWOOD NO. GL 6822

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

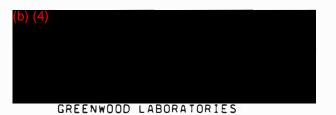
SAMPLES:

GL 6822-1 thru -4: Camdel Metals Corporation (listed below).

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6822-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	RW-1 11/26/85	29 ug/L	0	0	2.1 ug/L
2	Pond "	18 ug/L	16 ug/L	0	0
3	Ground Spray 11/26/85	2.7 ug/L	0	0	0.3 ug/L
4	MW-19 11/26/85	0	0	0	0



GRU: del

Copy: (b) (4) Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19345 PHONE: 215-888-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4) , Ph.D.

DATE:

December 5, 1985

GREENWOOD NO. GL 6825

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6825-1 thru -4: Camdel Metals Corporation (listed below).

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6825-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1 12/3/85	28 ug/L	0	0	2.1 ug/L
2	Pond "	0	0	0	0
3	Field Spray "	14 ug/L	0	0	0.5 ug/L
4	MW-19	0	0	0	0

(b) (4)

GREENWOOD LABORATORIES

GRU: del

Copies: (b) (4), Handy & Harman Tube Co.; (b) (4), Camdel Metals Corp.



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE, PA. 19348 PHONE: 215-388-7295

TO:

b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

January 16, 1986

GREENWOOD NO. GL 6853

SUBJEC1:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6853-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6853-	10-	Sample Identity	C ₂ HCl ₃	СH ₃ СС1 ₃	CHC1 ₃	C ₂ Cl ₄
1	1/13/86	RW-1	26 ug/L	0	0	0.2 ug/L
2	11	Ground Spray	9.5 ug/L	4.8 ug/L	0	0.6 ug/L
3	п	Pond	6.6 ug/L	0	0	0.6 ug/L
4	ш	MW-19	0	0	0	0

(b) (4)

GREENWOOD LABORATORIES

GRU:del

Copy: (b) (4) , Handy & Harman Tube Co .;

(b) (4)

, Camdel Metals Corp.

-uvuruturtes

ANALYTICAL CHEMISTS AND CONSULTANTS,

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19345 PHONE: 215-386-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

February 19, 1986

GREENWOOD NO. GL6886

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6886-1: RW-1 2/13/86

GL 6886-2: Pond

GL 6886-3: Ground Spray 2/13/86

GL 6886-4: MW-19 2/13/86

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6886-		Sample Identity		C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	2/13/86	RW-1		23 ug/L	0	0	2.2 ug/L
2	.99	Pond	(6)	8.3 ug/L	0	0	0
3	"	Ground Spray		7.2 ug/L	0	0	0.5 ug/L
4		MW-19		0	0	0	0

GRU: del

Copy:

, напdy & Harman; <mark>(b) (4)</mark>

, Camdel Metals

REFERENCE 3

REFERENCE 3A

reenwooa ∠aboratories



903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

) (4) , Ph.d.

DATE:

January 28, 1986

GREENWOOD NO. GL 6868

SUBJECT:

Evamination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6868-1 thru -4: Camdel Metals Corporation(listed below)

SUMMARY:

These samples have been examined by gas Chromatography using the previously described procedure. The analytical results are as follows:

GL #		Sample Identity	C ₂ HCl ₃	CH3CC13	CHC13	C ₂ Cl ₄
1	1/24/86	R W - 1	22 ug/L	0	0	2.0 ug/L
2	,	Ground Spray	6.2 ug/L	0	0	0.5 ug/L
3	"	Pond	4.1 ug/L	0	0	0.3 ug/L
4	ti	MW-19	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4), Handy & Harman Tube co.; (b) (4), Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.d.

DATE:

February 3, 1986

GREENWOOD NO. GL 6874

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6874-1 thru -7: Camdel Metals Corporation (listed below).

SUMMARY:

These samples have been examined by gas chromatography using the preivously described procedure. The analytical results are as follows:

GL #	S 2	mple Identity	C2HC13	CH3CC13	CHC13	C2C14
6874-		mple identity	_	-		
16	1/31/86	RW-1	22 ug/L	0	0	2.1 ug/L
2		Ground Spray	6.8 ug/L	0	0	0.8 ug/L
3		Pond	5.6 ug/L	0	0	0
4		MW-19	0	0	0	0
5	tt	MW-17	6.0 ug/L	3.0 ug/L	0	0
6		MW - 7	120 ug/L	0	0	0.4 ug/L
7		MW - 4	86 ug/L	3.2 ug/L	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) , Handy & Harman Tube Co; (b) (4) , Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-388-7295

TO:

SMC Martin

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

July 24, 1985

GREENWOOD NO. GL 6701

SUBJECT:

Examiantion of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6701-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These sampels have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6701-	Sample Identity	C2HC13	CH ₃ CCl ₃	CHC1 ₃	C ₂ C1 ₄
1	Pond 7/23/85	0	0	0	0
2	RW-1 "	37 ug/L	0	0	2.5 ug/L
3	MW-19 "	0	0	0	0
4	Ground Spray 7/23/85	4.0 ug/L	0	0	0



GREENWOOD LABORATORIES

GRU:del

Copy: (b) (4) , Handy & Harman Tube Co.; (b) (4) , Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

CENNETT SQUARE. PA. 19348 PHONE: 215-388-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

July 30, 1985

GREENWOOD NO. GL 6702

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6702-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6702-		Sample	Identit	Υ		C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	R-7/26	RW-1	7/26/85	10:24	am	32 ug/L	0	0	2.0 ug/L
2	FS-7/26	Field	SSpray	10:34	am	0	0	0	0
3	P07/26	Pond	7/26/85	10:30	am	0	0	0	0
4	MW-7/26	MW-19	H	10:48	am	0	0	0	0



GRU: del

Copy:

Handy & Harman Tube Co.; (b) (4)

, Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-388-7298

TO:

SMC MARTIN P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

August 1, 1985

GREENWOOD NO. GL 6705

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6705-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6705-	Sample Identity		C ₂ HC1 ₃	СH ₃ СС1 ₃	CHC1 ₃	C ₂ C1 ₄
1	Ground (Field Spray 7/30/8	15 11:18 am	19 ug/L	0	0	0
2	RW-1 "	11:06 am	37 ug/L	0	0	2.1 ug/L
3	Pond	11:11 am	0	0	0	0
4	MW-19 "	11:30 am	0	0	D	0

GREENWOOD LABORATORIES

GRU: del

Copies:

, Handy & Harman; (b) (4)

, Camdel Metals

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: 215-388-7295

8 (Hod)

TO:

SMC Martin

SMC Maltin

P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4)

, Ph.D.

DATE:

October 30, 1985

GREENWOOD NO. GL 6794

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6794-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6794-	Sampl	e Identity	C ₂ HCl ₃	сн ₃ сс1 ₃	CHC1 ₃	C ₂ Cl ₄
1	Ground Spray	10/28/85	2.4 ug/L	0	0	0.2 ug/L
2	RW-1	11	31 ug/L	0	0	1.6 ug/L
3	Pond	n	1.8 ug/L	0	0	0
4	MW-19	11	0	0	0	0



GRU: del

Copy: (b) (4), Handy & Harman; (b) (4), Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-886-7295

TO:

SMC MARTIN P. O. Box 859

Valley Forge, PA

19482

FROM:

, Ph.D.

DATE:

August 6, 1985

GREENWOOD NO. GL 6706

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6706-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6706-		Sample Identity				C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	8713	8/2/85	11:45	am	35 ug/L	0	0	2.2 ug/L
2	Spray	и	**	11:50	am	0	0	0	0
3	Pond	**	70	11:47	am	0	0	0	0
4	MW-19	n	16	11:58	am	0	0	0	0

GREENWOOD LABORATORIES

GRU: del

Copy:

, Handy & Harman; (b) (4) Cambel Metals Corp.



903 E. BALTIMORE PIKE

RENNETT SQUARE. PA. 19348 PHONE: 215-388-7295 (ind)

TO:

b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

b) (4) , Ph.D.

DATE:

August 22, 1985

GREENWOOD NO. GL 6723

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6723-1 thru -4: Camdel Metals Corp.

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6723~	Sampl	e Identity	C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	8/16/85	44 ug/L	0	0	2.3 ug/L
2	Ground Spray	11	4.6 ug/L	0	0	0
3	Pond	10	0	0	0	0
4	MW-19	66	0	0	0	0



GRU: del

Copy: (b) (4), Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin

P. O. Box859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

GREENWOOD NO. GL 6713

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6713-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatogrpahy using the previously desscribed procedure. The analytical results are as follows:

GL # 6713-	Sampl	e Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	RW-1	8/9/8	46 ug/L	0	0	2.5 ug/i
2	Ground Spray	**	0	0	0	0
3	Pond	н	7.1 ug/L	0	0	0
4	MW-19	"	b) (4)		4	
		*				
			<u> </u>	REENWOOD LAB	ORATORIES	

GRU: del

Copy: (b) (4) , Handy & Harm

, Handy & Harman Tube Co.; (b) (4)

, Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-366-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

August 8, 1985

GREENWOOD NO. CL 6710

SUBJECT:

Examination of water samples for trichloroethylene and related compounds.

SAMPLES:

GL 6710-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6710	Sample Identit	C ₂ HCl ₃		C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	——————————————————————————————————————
1	RW-1 8/6/85 12:15 pm	8/6/85		40 ug/L	0	0	1.9 ug/L
2	Ground Spray 12:18 pm	n		0	0	0	0
3	Pond 12:10 pm	n		0	0	0	0
4	MW-19 12:20 pm	**		0	0	0	0



CRU:del

, Handy & Harman Tube Company; (b) (4) Copy: (b) (4)

Camdel Metals Corp.





KENNETT SQUARE, PA. 19348 PHONE: 215-388-7295

10:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

September 19, 1985

GREENWOOD NO. GL 6750

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

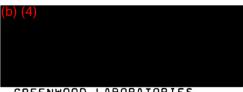
SAMPLES:

GL 6750-1 thru -4: Camdel Metals Corp.

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6750-		Sample Identity	C ₂ HCl ₃	сн ₃ сс1 ₃	CHC1 ₃	C ₂ Cl ₄
1	9/19/85	Pond	0	0	0	0
2	H	Ground Spray	4.5 ug/L	0	0	0.3 ug/L
3	"	MW-19	0	0	0	0
4	••	RW-1	39 ug/L	0	0	1.8 ug/L



GREENWOOD LABORATORIES

GRU: del

Copies: ,Handy & Harman Tube Co.; (b) (4) Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 FHONE: 215-888-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.D.

DATE:

October 8, 1985

GREENWOOD NO. GL 6765

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6765-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6765-	Sam	ple Identity		C2HC13	CH3CC13	CHC13	C ₂ Cl ₄
1	RW-1	10/4/85		35 ug/L	0	0	1.8 ug/L
2	Pond	H		6.3 ug/L	0	0	0
3	Eield Spray	11		3.4 ug/L	0	0	0.2 ug/L
4	MW-19	11	205	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4), Handy & Harman Tube Co.; (b) (4), Camdel Metals Coip.



903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: 215-386-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4)

, Ph.D.

DATE:

October 14, 1985

GREENWOOD NO. GL 6770

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6770-1 thru -4: Camdel Metals Corporation

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6770-	Sample Identity		C2HC13	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	10/11/85	R W - 1	34 ug/L	0	0	2.2 ug/L
2	11	Pond	1.8 ug/L	0	0	0
3	#	Lawn Spray	4.9 ug/L	0 ,,,	0	0.2 ug/L
4	n	MW-19	0	0	0	0

(D) (4)

GREENWOOD LABOR TORIES

Copy: (b) (4) , Handy & Harman Tube Co.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA

19482

FROM:

b) (4) , Ph.D.

DATE:

August 26, 1985

GREENWOOD NO. GL 6726

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6726-1 thru -4: Camdel Metals (listed below)

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6726-	Samp	le Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	————
1	RW-1	8/23/85	170 ug/L	0	0	1.8 ug/L
2	Ground Spray	11	2.9 ug/L	0	0	0
3	Pond	u T	4.5 ug/L	0	0	0
4	MW-19	"	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b Handy & Harman Tube Co.;

(b) (4_.

, Camdel Metals Corp.



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348 PHONE: 215-388-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

, Ph.d.

DATE:

September 2, 1985

GREENWOOD NO. GL 6731

SUBJECT: Examination of water samples for trichlorpethylene and related compounds.

SAMPLES: GL 6731-1 thru -6: Camdel Metals Corporation

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6731-		Sample IDentity	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ C1 ₄
1	8/30/85	RW~1	34 ug/L	0	0	1.8 ug/L
2	11	Ground Spray	2.7 ug/L	0	0	0
3	н	Pond	0	0	0	0
4	н	MW-19	0	0	0	0
5	84	MW-5	7.2 ug/L	0	0	0
6	14 —	MW-6 =	4.8 ug/L	0	0	0

GREENWOOD LABORATORIES

GRU: del

, Handy & Harman Tube Co.; (b) (4) , Camdel Metals Corp. Copy: (b) (4)

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE, PA. 19348 PHONE: 215-888-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

November 6, 1985

GREENWOOD NO. GL 6802

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6802-1 thru -4: Camdel Metals Corp. (listed below).

SUMMARY:

These samples were examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6802-	Sample Identity	C ₂ HCl ₃	CH3CC13	CHC1 ₃	C ₂ Cl ₄
1	RW-1 11/4/85	ا/وبر 17	0	0	1.7 Jug/L
2	Pond "	ع/وبر 5.8	0	0	0
3	Spray "	سg/L مر 1۔	0	0	ع/وµ 0.2
4	MW-19 "	0	0	0	0



GRU: del

Copy: (b) (4)

(D) (4)

, Camdel Me.als Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348 PHONE: 215-366-7295

TO:

(b) (4) SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

DATE:

October 24, 1985

GREENWOOD NO. GL 6786

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6786-1 thru -4: Camdel Metals Corporation.

SUMMARY:

These samples have been examined by gas chromatography using the preivously described procedure. The analytical results are as follows:

GL # 6786-		Sample Identi	ty	C ₂ HCl ₃	CH ₃ CCl ₃	CHC13	C ₂ Cl ₄
1	Ground Spray 10/21/85			3.1 ug/L	0	0	0
2	RW-1 10/21/85			37 ug/L	0	0	1.9 ug/L
3	MW-19	н		0	0	0	0
4	Pond	н		0	0	0	0

MJL:del

Copies:

, Handy & Harman; (b) (4)

, Camdel Metals Corp.



903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4) t, Ph.D.

DATE:

September 10, 1985

GREENWOOD NO. GL 6740

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6740-1 thru -3: Camdel Metals Corporation

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6740-		Sample Identity		C2HCl3	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	9/6/85	RW-1		30 ug/L	0	0	0.3 ug/L
2	16-	Pond		0	0	0	0
3	"	Ground Spray	\	3.8 ug/L	0	0	0

(b) (4)

GREENWOOD LABORATORIES

GRU: del

Copy: (b)(4), Handy & Harman; (b)(4), Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348 PHONE: 215-388-7295

TO:

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

September 17, 1985

GREENWOOD NO. GL 6743

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6743-1 thru -4: Camdel Metals Corporation

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6743-		Sample Identity	 C ₂ HC1 ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ C1 ₄ _
1	9/13/85	RW-1	39 ug/L	0	0	2.0 ug/L
2	19	MW-19	0	0	0	· O
3	If	Pond	0	0	0	0
4	11	Spray Field	4.1 ug/L	0	0	0

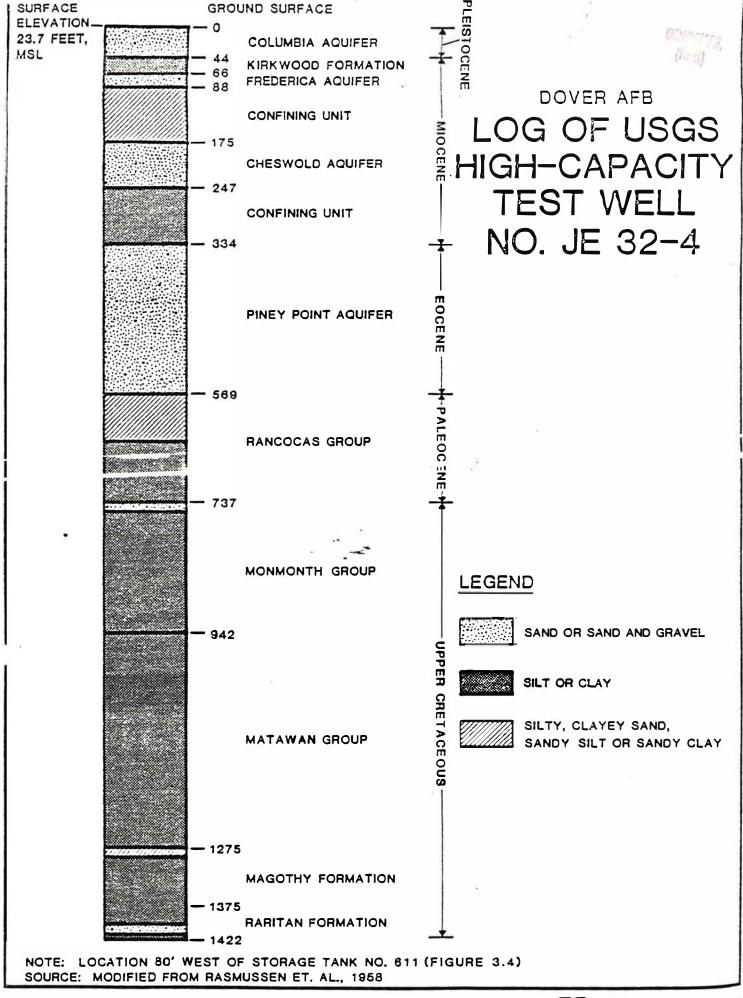


GRU: del

Copy:

Handy & Harman Tube Co.; (b) (4)

Camdel Metals Cor



sand and gravel. At Dover Air Force Base, this unit is some twenty-two feet thick. Because it is not normally utilized as a source of water in the study area, it has not been adequately investigated, therefore, little is known about its specific hydraulic properties in central Kent County. The Frederica subcrop (area where the unit is present immediately below the principal overlying strata) occurs as a narrow band crossing Delaware in the vicinity of Dover, north of Dover Air Force Base. The unit probably derives most of its recharge in this zone. Water is contained in the unit under artesian (confined) conditions and the major flow direction is probably downdip to the southeast with respect to the installation.

Deep Units

The Cheswold and Piney Point Formations form the two primary deep, regional aguifers of the study area. The Cheswold Aguifer, a part of the lower Chesapeake Group, occurs at a depth of some 175 feet below ground surface at Dover air Force Base. It is approximately 111 feet thick at test well JE32-4, and is comprised mainly of noncalcareaus fine to coarse sand, gravel and shells. Prior to extensive development the Cheswold probably was recharged in its subcrop area and to a limited extent by leakage from the overlying Columbia, where the confining layer is somewhat sandy. For the purposes of this discussion, the subcrop of the Cheswold is a narrow belt extending across Delaware, some ten miles northwest of Dover Air Force Base. The Cheswold subcrop is defined as the area or zone where it is in direct hydraulic communication with the unconfined Columbia deposits. Ground-water flow system modeling implies that extensive development has induced recharge to the Cheswold from the 32 square mile area of the St. Jones River basin northwest of the City of Dover (Leahy, 1982). Once water has entered the Cheswold, it flows downdip (southeast) or to the nearest pumping center for withdrawal. Figure 3.8, a potentiometric map of the Cheswold Aquifer, shows groundwater levels and flow directions for the study area. An examination of the potentiometric surface indicates that a major drawdown feature (cone of depression) has been created and is centered over the southeast section of the City of Dover. Cheswold water level elevations indicate that flow within the aquifer has been reversed below Dover Air Force Base and now proceeds west and northwest toward the city (1975 data).

Based upon extrapolation, the hydraulic gradient appears to be on the order of forty feet per mile at the base.

ORIGINAL (Red)

Underlying the Cheswold Aquifer is a significant confining bed of silty, clayey sand, reported to be approximately 100 feet thick at Dover Air Force Base (Leahy, 1979). This confining layer separates the Cheswold from the underlying Piney Point Formation, the deepest aguifer of consequence in the study area. The Piney Point's lithology is reported to be marine fine to coarse sands, shells, glauconitic and calcareous. Pre-development recharge to the aguifer was reported to be by leakage through silty confining units from units above, as the Piney Point neither crops out nor subcrops an overlying aquifer (Leahy, 1979). Additional recharge has probably been induced from the Cheswold Aguifer, in reponse to extensive exploitation of the Piney Point. Figure 3.9 is a potentiometric surface map of the Piney Point Aguifer which has been modified from Leahy (1979). This drawing shows that ground-water flow within the Piney Point proceeds in a northwesterly direction relative to Dover Air Force mase along a gradient estimated to be on the order of twenty feet per mile (1975 data). A major drawdown feature is centered beneath the City of Dover.

Ground-Water Use

Ground water is utilized by the entire population of the study area. The Columbia is known to furnish water supplies to domestic and agricultural consumers near the installation. While the actual locations of these wells are unconfirmed, it is believed that most permanently inhabited structures near the base possess at least one well finished into the Columbia for the purposes of human consumption, stock watering or crop irrigation. Due to its general accessibility, reliability (does not run dry) and typical good quality (Woodruff, 1970), the Columbia is known to be a good source of potable supplies. At present, a consultant is examining the utility of the Columbia Aquifer as a potential future source of additional water supplies for the City of Dover. It has been reported that if the Columbia is developed by the city, new well fields would be constructed immediately west and north of Dover Air Force Base (Hodges, 1983). The primary limitation of the Columbia is its easy susceptability to contamination.

TABLE 3.4

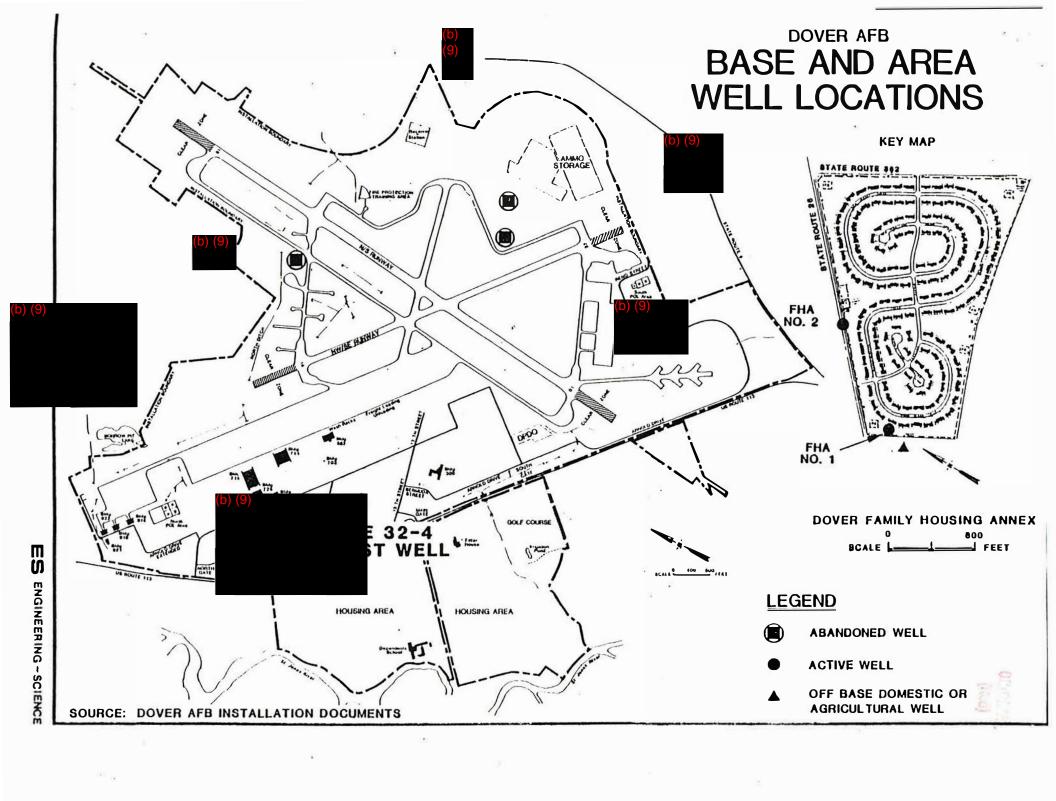
DOVER AIR FORCE BASE
INSTALLATION WELL CONSTRUCTION INFORMATION

Well Identifier	Location (Bldg)	Depth (Feet)	Screen Length (Feet)	Diam. (In.)	λquifer	Static Water Level (Ft. Below Surface)	Capacity (GPM)	Construc. Date (Reconst. Date)
Α	606	268	30	10	Cheswold	-	300	1952
В	641	230	45	10	Cheswold	68	700	1953 (1975)
С	645	233	30	10	Cheswold	81	675	1955 (1974)
D	612	560	100	12	Piney Point	126	900	1963 (1973)
*FH4 No. 1	4000	697	50	12	Piney Point	98	620	-
*FH4 No. 2	4200	I -	_	-	Piney Point	: -	-	1979
. NEW	1326	560	-	12	Piney Point	120	200	1983

Source: Installation Documents (1978) and Sundstrom and Pickett (1968)



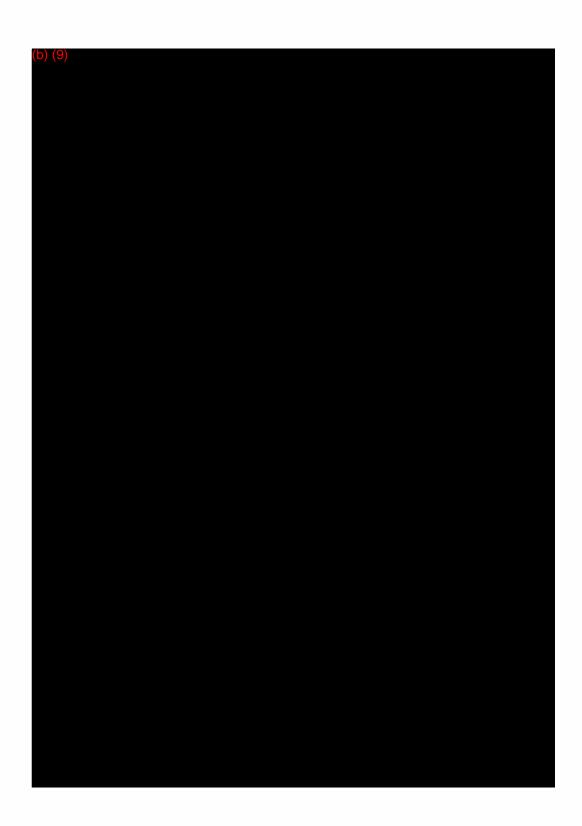
^{*} Indicates Family Housing Annex



REFERENCE 4

REFERENCE 4A

DRIGINAL MAP IN EPA CASE FILE
DE-115



REFERENCE 4B

	PHONE CALL DISCUSSION FIELD	TRIP CONFERENCE			
RECORD OF	OTHER (SPECIFY)				
COMMUNICATION	(Record of item checked above)				
TO: / /	FROM:	DATE			
breg Scott, Asst. Town Mgr.	1 2	10/1/85			
Dover	Laura Boornazian, EPA	3:50 pm			
SUBJECT					
Dover's water supply					
SUMMARY OF COMMUNICATION					
I confirmed the info. relayed by wells draw from Chesurela and is accurate. He will send well logs if they he	y Phil Cherry: 14 wells; Piney Point aquifers. Population we them - at least will send the	of 27,500 served well statistics.			
1					
Atternate supply: If I or I wells were taken out of service, others could provide supply temporarily, but would be difficult. They have no other water sources (such as purface water) available to use.					
CONCLUSIONS, ACTION TAKEN OR REQUIRED		***			
	*				
INFORMATION CORIES					
INFORMATION COPIES TO:					

}

REFERENCE 4C

	PHONE CALL DISC	USBION FIELD	TRIP CONFERENCE		
RECORD OF	OTHER (SPECIFY)		OPICTOR		
COMMUNICATION	(Record of item checked above)				
TO:	FROM:	Old Of Reill Clibeked 80	DATE		
Dhil Chepau Del DNIPEC.	100-10		10/1/85		
Phil Cherry, Del. DNREC	Laura Boornava	FPA	TIME		
Geohydrologist SUBJECT	Maria 1000 mara	0, 0171	3:00 pm		
SUBJECT					
Dover area water supplies					
SUMMARY OF COMMUNICATION					
I asked about water supplies of Light site.	or a 3-mile radiu	s around the	Dover bes +		
A lila in Acuse a	nd Water authority	- 2 wells one	in each lown		
Canden Wyoming Newer a	The sound and the		. 1		
Cheswold + Piney Por	nt aguifers 302	2-697-6372 91	the Roth		
Light sile. Canden Myoming Sewer a Cheswold + Piney Por	(complete bases to las	to heto 13 + 11	3) - all individual		
phoore a lake divilopment	(South of mode's Co	04 10 11	O A CONTRACTOR		
Wells. Primarily d	rew from Columbia	or Cheswold.	Some problems		
Moore's Lake development wells. Primarily d with high nitrate &	eels.		ŕ		
Edge Hill-public water		Pt 113 Drees	By St Amer R		
Circa east of moore's Lake L	evel (bordered by 1	4.115, qual	or, 101 . Spice 10.5		
a. P. Dungham Ba) on wirete wells				
and Puncheon Br.) on private wells.					
Cheavold aquifer about 220 ft. deep. Hick.	Piney Point ranges for	om 290 to 350 f	t. deep and is about.		
Dover public water system is explor 3-4 years. Levels in Piney Pt. de	ing use of Columbia cressed over 100 ft.	aguifer - sho	uld be hooked up in		
13 = 1	· · · · · · · · · · · · · · · ·	11. 0.0/0.			
Water from all 14 wells goes into a The pop. served by Dover is 27,50 Div. of Public Health Inventory CONCLUSIONS, ACTION TAXEN OR REQUIRED	l common aboutous	ion signer.	24.4		
The pag served by Dover is 27.50	0 (7823 pervice C	onnections) -	- Source: teb 1985		
D. which is a second of the	and + Water	1. 1. 00/1.			
VIV. of Public Wealth Universory	of Osninuning Wall	r suggests			
CONCLUSIONS, ACTION TAKEN OR REQUIRED	U				
			1		
		9			
INFORMATION COPIES					
TO:					

REFERENCE 4D

RECORD OF COMMUNICATION	OTHER (SPECIFY)	CONFERENCE				
TO: (C4	(Recordor item checked					
TO: Olive Cordesu	FROM:	DATE 10/31/85				
DNREC Water Supply Branch	Laura Boornagian, EPA	TIME AM				
Depth of wells in Dover are	a_					
SUMMARY OF COMMUNICATION (302 / 736						
I called to ask about depths of private wells in the Dover area.						
The said that most older	homes have shallow wells	(~30 \mathcal{H}.),				
On the whole there is a	unig replaced due to lack of wide range of well dept	to.				
6.45		1				
Close to Moore 's Lake	Close to Movre's Lake - Wells & 50 ft. deep (Columbia 7m.) West of Moore's Lake many homes have ~ 240 ft. wells.					
East of Rt. 113 A he	w horsing development CF.	Pennevord)				
installing 200-301	ft. wells.					
CONCLUSIONS, ACTION TAKEN OR REQUIRED						
INFORMATION COPIES						
то:						

REFERENCE 4E

	PHONE CALL DISCUSSION FIELD TRIP CONFERENCE				
RECORD OF COMMUNICATION	OTHER (SPECIFY)	Marine			
Commonted Told	(Record of item checked above)				
TO: 0 1 0 11 11	FROM:	DATE			
John Koth, Chaviman	1. 0	10/1/85			
John Roth, Chaviman Camden/Wyoming Sewer+Water auch.	Laura Boornayan, EPA	4:30 pm			
SUBJECT					
Water Supply for Conden + Wyo	ming				
SUMMARY OF COMMUNICATUON					
(b) (9)	(b) ((9)			
	CH	mey Point aquifer).			
		00			
They serve homes in the o	at light D	trailer			
oray come numes in the	(b) (9)				
<i>ou</i>	avenue				
(b) (9)					
,					
They have 1,004 hookups	(residences).	×			
8					
CONCLUSIONS, ACTION TAKEN OR REQUIRED					
CONCEDSIONS, ACTION TAKEN OF REGUINES					
I le au le 4 aut	and the Australia	1.			
Homes served by this water	Company were surround	fum			
Missing & house Count which	company were subtracted assumed these homes had	private wells.			
oughte falls		,			
INFORMATION COPIES					
το:					

REFERENCE 4F

	PHONE CALL DISCUSSION FIELD	O TRIP CONFERENCE			
RECORD OF	PHONE CALL DISCUSSION FIELD TRIP CONFERENCE				
COMMUNICATION	(Record of Item checked above)				
To:	FROM:	DATE 10/2/8C			
Don Witner, Environmental Supv. Dover Air Force Base	Laura Boornayan, EPA	10/2/85 TIME			
SUBJECT SUBJECT	0 ,	11:30 am			
Water Supply					
SUMMARY OF COMMUNICATION (302) 678 - 63	351				
I called to find out if wells i	3+C still ui use -				
yes, they are still in use. W	ell B is their 2nd biggest prod	ucer.			
The water from all 5 wells	is fed into a common distrib	intron system.			
He estimates the population s	erved to be slightly in excess	of 10,000 people.			
He coved not address the	possibility of alternate supply	- i.e., if			
Wells 8+C were taken our	of service, he doesn't kno	w if other			
weels can provide adequet	wells B+C were taken out of service, he doesn't know if other wells can provide adequate supply without doing research to find out.				
Their only supply is at the housing area. are not associated with one is a DOE geotherm test well but he doesn't	some points raised by (6) (4)	_			
Their only supply is	the 5 on-site wells and the	2 wells			
at the housing area.	There are 2 other wills	Which they			
are not associated with	a but they're on lover the	s property -			
one is a DOE geotherm	al well (4) 1000 ft). There	e is another			
test well but he doesn.	t Know the depth.				
CONCLUSIONS, ACTION TAKEN OR REQUIRED					
	T#)				
INFORMATION COPIES					
TO:					

REFERENCE 4G

RECORD OF	PHONE CALL DISCUSSION FIELD	TRIP CONFERENCE		
COMMUNICATION	OTHER (SPECIFY)			
TO: 70	(Record of Item checked ab	DATE		
TO: Don Witner, Environmental Super		2/21/86		
Dover Air Force Bese	Laura Boornayan, EPA	10:30 am		
SUBJECT V	*			
Water Supply (302)678-6351				
SUMMARY OF COMMUNICATION				
The two wells in the family he Base system. There are There is no alternate suppl	ousing annex are not connected 300 housing units in the housely for these users.	to the ing annex.		
There is a potato farmer nea	rby who uses a well for irriga	tion.		
CONCLUSIONS, ACTION TAKEN OR REQUIRED	<u>×</u>			
INFORMATION COPIES TO:				

REFERENCE 4H

DECORD OF	PHONE (CALL DISCUSSION	FIE	LDTRIP	CONI	FERENCE
RECORD OF COMMUNICATION	OTHER (SPECIFY)					
70:	l snow	(Record of item	checked		.6	LICHTAL TO
	FROM:	0		DATE 2	121/86	tuedi
Kent County Onto.	Laura	Boornagion, EPA		TIME	3:45 pm	
SUBJECT	٠ ٠٠			•	-	
Population into - Canden - Wyonu	ng, De	laware				
SUMMARY OF COMMUNICATION	Ü					
4						1
1980 Census Sujo.						
	1 suden 1,757	Wyoming				
_	1 000	0				1
Population Housing Units	1, 757	960	=	2717		
11 in Muito	714	395	=	1109 x	38=	
Housing towns	111	0.0	_			i
J					4214	
_						
						- 1
CONCLUSIONS, ACTION TAKEN OR REQUIRED						
						1
			2			
INFORMATION COPIES						
TO:						

REFERENCE 4I

	PHONE CALL DISCUSSION FIELD	TRIP CONFERENCE		
RECORD OF	OTHER (SPECIFY)			
COMMUNICATION	(Record of item checked above)			
TO:	FROM:	DATE		
May Oacher +		2/21/86		
Mr. Gackowitz	Laura Bovinasjan	4:00 pm		
SUBJECT	•			
Goundwater use in Dover are	<u>a</u>			
SUMMARY OF COMMUNICATION				
Mr. (6) (6) has two virigation Housing annex for his form the 1200-acre form each	m wells located near the Dover 1. He virigates about 500 acre year, primarily in June, of livery single year. The we	ccasionally		
	54			
_				
INFORMATION COPIES				
TO:				

REFERENCE 4J

	PHONE CALL DISCUSSION FIELD	TRIP CONFERENCE
RECORD OF COMMUNICATION	OTHER (SPECIFY)	00001791
	(Record of item checked at	bove)
Phil Cherry Water Supply	FROM:	DATE 3/24/86
Phil Cherry, Water Supply Delaware DNREC	Laura Bournayan, EPA	ITIME
SUBJECT	U .	4:15 pm
Surface water use near Car	adel Metals site	
SUMMARY OF COMMUNICATION		
(b) (6) hes down	Newell Branch or Tidbury (aurface water intake on Tidb attream of the Confluence of y Creek. Uses the water to	rury Creek Newell
	€	
INFORMATION COPIES TO:		



REFERENCE 5

	PHONE CALL DISCUSSION FIELD	TRIP CONFERENCE	
RECORD OF	[D		
COMMUNICATION	(Record of item checked ab	ORICHOD	
TO:	FROM:	DATE	
^ .	Tools when	3 . 17 . 86	
Brad Smith, Delaware DUREC	Laura Boornayan, EPA	TIME	
SUBJECT			
accessibility to Camdel Metals	site		
SUMMARY OF COMMUNICATION	,	1	
SUMMARY OF COMMUNICATION		1	
Ruddin I de air	Al. alla in patril. Augrand	1 /2. 6	
Grad chove by the site.	The site is entirely surrounde	a y ~	
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pence.		j	
U			
		1	
CONCLUSIONS, ACTION TAKEN OR REQUIRED			
	26		
	:5		
INFORMATION COPIES			
то:			

A Preliminary Assessment

of

EPA No. DE-

Camdel Metals

PA/SI Cooperative Agreement Grant No. V-003350-01-0

DE 113

L 13

G. Byer, Acting Chief vestigation and Support Section 'A Region III

e Department of Natural Resources vironmental Control l Waste Management Section

Brad L. Smith , PA/SI Investigator Eileen M. Hack, PA/SI Coordinator I. Introduction



EH- Region 15: Bits Investigation Circost.

General Summary

The organise the use of previous increases. These introducts are cleaned out after organism with abtenta. Orinolpsil True Johnstwiene will be used in a decreased litt.

values one plant red over in possession for the rest obstact was a set sampled by plant carried. A composite exhibit taken from the later sample showed 100 that to the partition e^{-2} of a consecution to a second of the second e^{-2} Harman then hard a consultant, e^{-2} Martin incorporated, to investigate the 1-2 contamination.

In order of perception the various and the terminal several various and the terminal several s

Environmental Lineral 15 000-501 decisions all controlled vells and the sets of the following states of the sets o



successed: "20 well number four should be sampled, and (2) water levels should be muritured at all of the wells at sample collection. "he initial tampling round was conducted by EMC Martin on April 13, 186.

On October 15. 1984 approximately 75 callons of TCE were extiled proximately clant floor after a case providing TCE to degreesing unit prove. Propositionally 33 so 15 callons of TCE reached the poil butside the clant. Well wondered in the contaminated area was consucted in October 56. 1984 by Enc. Toniunction With monitoring well to sample results (4900 ppb of TCE) successed that TCE had reached the croundwater.

SKC recommended the Sollawing:

- 1. Remove and serate contaminated apt.
- Evaluate the integrity of well number six to be certain that the TOT cion't loak down the well cassing.
- In Install a recovery well in the spill area.
- 4. Perform and and water sampling to vacily the effectiveness is the above ranedial measures.

anisotable A soli expedder expeds the contaminated soli and chrowe at 10 to 10 test annount the air, requesting moisture content and maximizing volitilization of TIE. Two sancies per case through the air, were notatined in the air of the content and maximizing volitilization of TIE. The sancies per case through the air operation of TIE from approximately 11 per to 23.5 arc.

A CRES COV WALL I'V-1 Win institute to the timeolate soil eres an en-



attempt to recover any possible contamination that may have migrated from the spill area. It was estimated that an extraction volume of approximately 302, 9
400 gallons would be necessary to recover a possible contamination plume. The extracted water sould be discharged into the nearby stormwater retention basin.

On April 2, 1985, DNREC gave SMC Martin, Inc. authorization for recovery and disposal of TCE contaminated groundwater at camdel metals. The authorization included the following requirements:

- 1 the limitation on TC2 concentration in the storm water pond should be 100 ppb, (not 100 ppm as appeared in the letter),
- 2 contaminant recovery pumpage will be initiated at a rate of about 100 gpm. However, the pond has a capacity to receive only about an additional 500,000 gallons - about three days of pumpage,
- 3 TCE should be monitored at the well, as the water falls into the pond (by catching it in a bucket), and in the pond,
- 4 when the pond is filled, the contaminated water may be sprayirrigated into the lawn subject to not exceeding the following TCE concentrations:
 - a 1 ppm to the recovery water
 - b 100 ppb landing on the soil
 - c 25 ppb in the ground water beneath the spray area
- 5 A 2-inch I.D. PVC monitor well will be installed in the spray area prior to spraying. Water levels and TCE monitoring will be initiated prior to any spraying and at least daily during the first week (sampling frequency may be stretched out thereafter contingent on results).

Recovery efforts were to continue intil TCE concentrations in the recovery well were decreased to 25 ppb and that TCE concentrations in any monitoring 11 well did not exceed 50 ppb. As of November 4, 1985, 14,424,600 gallons had been recovered and treated. Contaminated concentrations from the recovery well have remained below 40 ppb. since August 20, 1985, and have continued to decline to a low of 17 ppb. Weekly sampling will continue until contaminant



concentrations in the recovery wall have stabilifized as as saism 21 pag.

a qualicities was reported of plant Lengther curing and Week of Adduct 19. 1985. Plant personnel discovered the less and placed recised the caulty condenser. Conteminant concentrations in the fact set walf estimate this solid and it's subsequent recovery.

Racompandations

Stabause of the extensive controlled for functions of section independed by Cimbel Metals and 600 Martin under the directive of Delaware 00020, we recommend that so further action these the Pa/SL process.

II. Site History

ME BEN WILLIAM

日本日本名 1000年

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Mindred Administration of the Conference of the

PROPERTY FOR A TOTAL LOCAL PROPERTY.

HE TERLEMINE

_ B G G L R F M

10712



III. Environmental Setting

Environmental Satting

Sections and Soils

The site is underlain by the Clumbia Constant water is approximately Edisect thick at the site. The Columbia Connation of underlain by the Chasaceake order which is approximately 200 jeet thick at the site. The Chasaceake order which is approximately 200 jeet thick at the site. The Chasaceake contains Microene sequences which proximately at the containing beds of gray, line to tectum crainer rate, and site after the site who main zones of eard in the Chasaceake chour are called the Thespoin equited and the Precence Advisor. The Chasaceake chours are called the Thespoin advisor is an a grate of approximately 25 feet below the site and the Precence as a way in a site and the Chasaceake chours are as a grate of a solution and the site and the Precence as a grate of a solution and the site and the Precence as a grate of the solution and the site and the proximately at the second advisor is an approximately at feet.

Below the Gresadeske crows as grantiful recipent over s_{n} / r_{n} depends basement.

Edil at the graph consists of passions sandvictors. The Capetris feeles consists of deep well drained soils on wellands. These soils from tooks in very old, predominant fly sandvicents.

County 0E, 1971

Grouns water

Sect Normal water flow direction as to the missings.

Success Water

The rearest theorem without a sweet children to the letter's actual put this space of the satural control of the s

LOTE GER SET TE DES ES NEETS ENTRES CONTRACTOR SET DE CONTRACTOR DE CONT

Population distribution



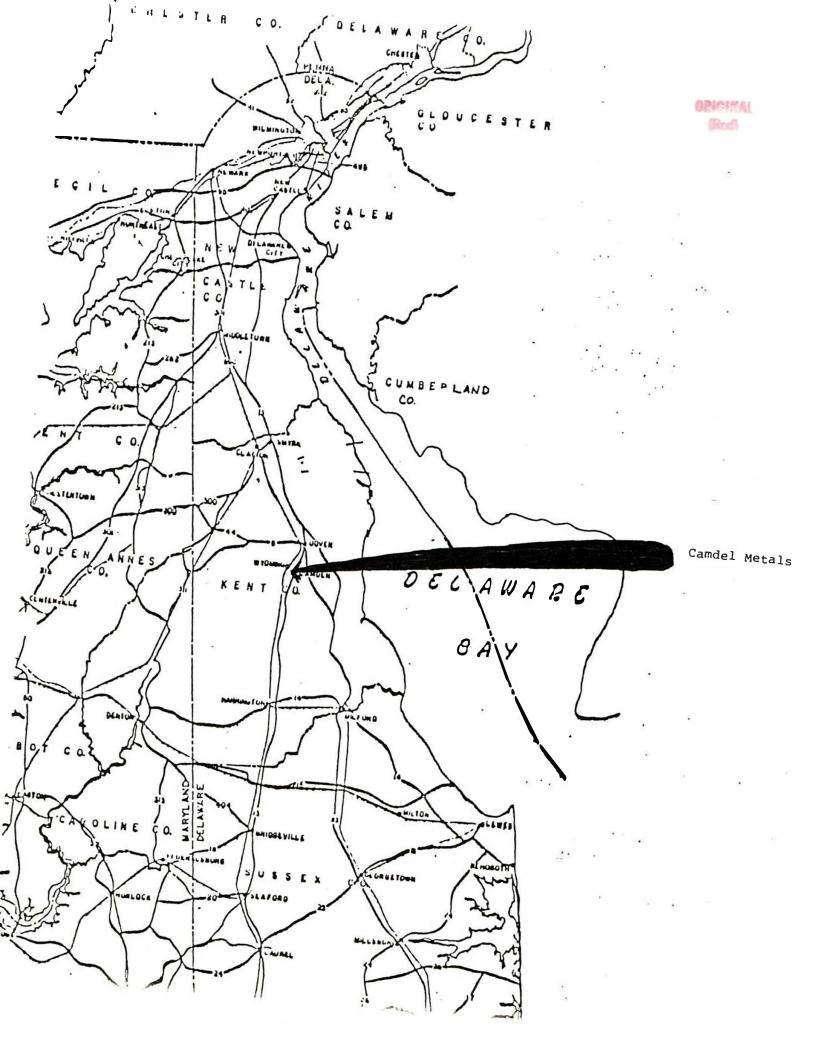
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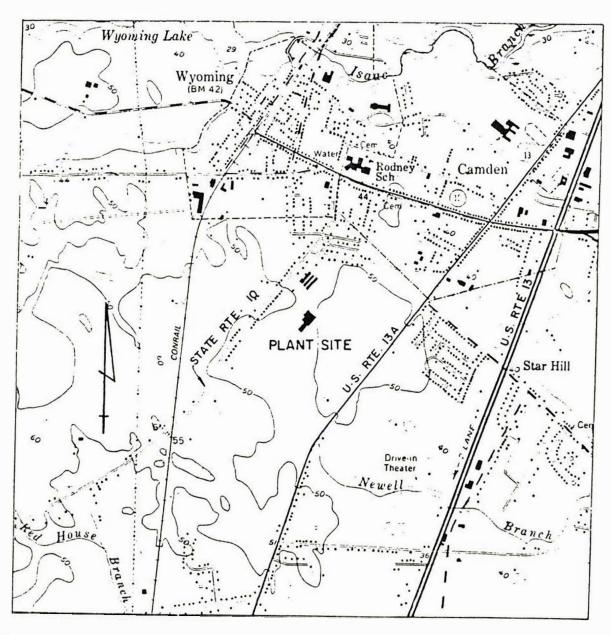
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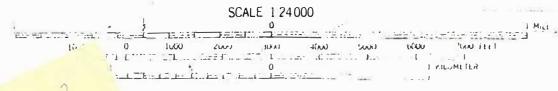
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There are no ynown aritima. Environments various E tiles of the same

VI. Maps and Drawings

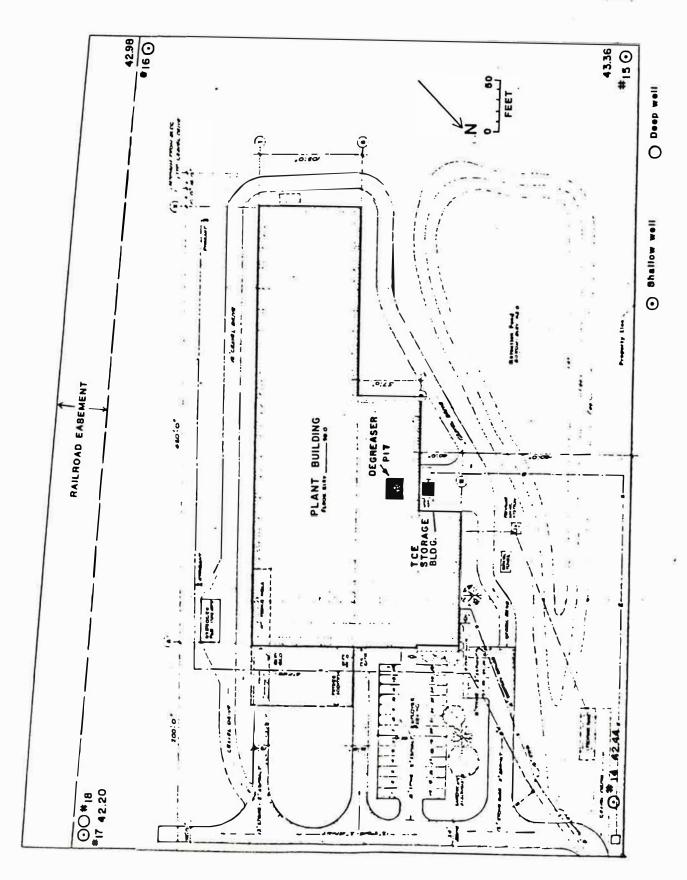




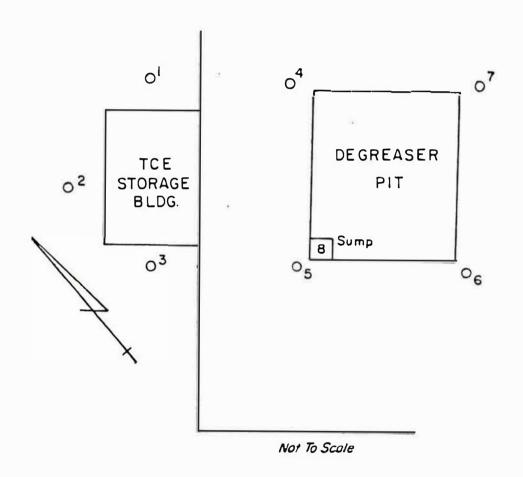


CONTOUR INTERVAL 10 FEET DATUM IS MEAN SEA LEVEL

Dans of Long.



Monitoring Wells 14-18



· IV. Preliminary Assessment Form

- 1	



	$P\Delta$

POTENTIAL HAZARDOUS WASTE SITE

I. IDENT	TFICATION
01 STATE	02 SITE NUMBER
DE	

	PRELIMINARY SITE INFORMAT			DE	02 SITE NUMBER
II. SITE NAME AND LOCATION					
01 SITE NAME (Legal, common, or descriptive name of site)		02 STREE	T. ROUTE NO., OF	R SPECIFIC LOCATION IDENTIFIER	
Camdel Metals Corporation		Vor	non F P	ine Industrial P	ark D+ 10
O3CITY				INE THOUSELLAL P	107COUNTY108 CONG
Camden		DE	19934	Kent County	CODE DIST
09 COORDINATES LATITUDE LONG	ITUDE				
10 DIRECTIONS TO SITE (Starting from nearest pubble mode) Vernon E. Pike Industrial Par)	c off of Rt	. 10	Camden D	elaware	
III. RESPONSIBLE PARTIES					
01 OWNER (il known)	The state of the s	02 STREET	(Business, making, i	residential)	
Handy and Harman Tube Co. Ind.		Town	ship lin	e and Whitehall	Road Rt. #3
03 CITY		04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER	
Norristown		PA	19401	(215) 539	3900
07 OPERATOR (If known and different from owner)		08 STREE	(Business, mailing, i		
Camdel Metals Corporation		Ber	non E. P.	ike Industrial P	ark
09 CITY		10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER	
Camden		DE	19934	1302 997	9521
13 TYPE OF OWNERSHIP (Check one)					
🛭 A. PRIVATE 🗆 B. FEDERAL:	(Agency name)		. C. STAT	TE DD.COUNTY DE. N	MUNICIPAL
☐ F. OTHER;	(Medic, Medic,		G. UNKI	NOWN	<i>₹</i>
(Specify) 14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)					
A. RCRA 3001 DATE RECEIVED: 1 / 8 / 81 (☐ B. UNCONTROLL	ED WASTE	SITE ICERCIA 10	DATE RECEIVED:	DAY YEAR C. NONE
IV. CHARACTERIZATION OF POTENTIAL HAZARD					
DYES DATE / / DA. EF	R AS INAI ADDIY) PA DE B. EPA DCAL HEALTH OFFIC		CTOR F. OTHER:		R CONTRACTOR
CONTR	ACTOR NAME(S): _			12000-17	
02 SITE STATUS (Check one)	03 YEARS OF OPERA				
©XA. ACTIVE □ B. INACTIVE □ C. UNKNOWN		1981 EGINNING YE		Sent UNKNO	wn
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, C	OR ALLEGED				
Trichloroethylene has been det	tected in s	oils	and grou	nd water	
05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/C	POPULATION				
remedial action to done would	nullify po	tenti	al hazar	d to environment	or population
V. PRIORITY ASSESSMENT					
O1 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, co.	moleie Part 2 - Waste Inform	nation and Par	3 - Description of Ha	tardous Conditions and incidents)	
A. HIGH (In spec iron required promptly) (In spec iron required promptly)	C. LOW	evallable Dasis	D. NON	IE Ther action needed, complete current disp	oosilon (arm)
VI. INFORMATION AVAILABLE FROM					
(b) (4)	02 OF (Agency Organiza SMC Marti		•		03 TELEPHONE NUMBER (215) 265-2700
04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGA	NIZATION	CT TELEPHONE NUMBER	OB DATE
Brad L. Smith	DNREC	Air	& Waste	736-4781	

POTENTIAL HAZARDOUS WASTESITE

	I. IDENT	IFICATION
		02 SITE NUMBER
1	DE	

D1 PHYSICAL STAT A. SOLID B. POWDER, F C. SLUDGE D. OTHER	TES, QUANTITIES, AN (ES (Check all that apply) (E. SLURRY SINES X F. LIQUID	02 WASTE QUANTI	TY AT SITE	03 WASTE CHARACTE	DISTING (Casch MIAM) and		
O1 PHYSICAL STAT A. SOLID B. POWDER, F C. SLUDGE	ES (Check all that apply) E. SLURRY INES X F. LIQUID	02 WASTE QUANTI	TY AT SITE	03 WASTE CHARACTE	DISTICS (Casch 18/88) 200		
	G. GAS	TONS _	waste quantities independent) 207/yr	₩ A. TOXIC ₩ B. CORROS ☐ C. RADIOAC	E. SOLUB	LE 1, HIGHLY VIOUS J. EXPLOSIABLE U.K. REACTIV	IVE /E
II WASTE TYP		CUBIC YARDS		D. PERSISTENT H. IGNITABLE			PLICABLE
IL WASTE TYP	(Specify)	NO. OF DRUMS					
			Τ				
CATEGORY	SUBSTANCE N	IAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS		
SLU	SLUDGE OILY WASTE						
OLW					-		
PSD	SOLVENTS		-				
	PESTICIDES	LISTANCAL C					
occ	OTHER ORGANIC C						
IOC	INORGANIC CHEMIC	JALS					
ACD	ACIDS BASES						
BAS MES	HEAVY METALS						
	JS SUBSTANCES (See		the stad CAS Members				
1 CATEGORY	02 SUBSTANCE		03 CAS NUMBER	04 STORAGE/DISE	POSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	corrosive solid			storage in	tanks		CONSENTIATION
F001	spent halogar		ents	storage in			
F002	" "	11	-	" "	11		
	KS (See Appendix for CAS Num		02 CAS NUMBER	CATEGORY	01 FEEDSTO	OCK NAME	02 CAS NUMBER
CATEGORY	01 FEEDSTO	UN NAME	OZ CAS NUMBER	FDS	O, FEEDSIC	JON HAIRS	OZ GAS NUMBER
FDS							
FDS	_		-	FDS			
FDS			-	FDS			
FDS	OF INFORMATION ICA		J	FDS			



POTENTIAL HAZARDOUS WASTE SITE

	I. IDENT	IFICATION	
i	01 STATE	02 SITE NUMBER	
J	DE		

	AZARDOUS CONDITIONS AND INCIDEN	13	
HAZARDOUS CONDITIONS AND INCIDENTS OI XXA. GROUNDWATER CONTAMINATION OR POPULATION POTENTIALLY AFFECTED: 1,700 +-	02/2/OBSERVED (DATE: 1982) 04 NARRATIVE DESCRIPTION	POTENTIAL	*XALLEGED
D1 DB. SURFACE WATER CONTAMINATION D3 POPULATION POTENTIALLY AFFECTED:	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED
N/A D1 □ C. CONTAMINATION OF AIR	02 □ OBSERVED(DATE:)	□ POTENTIAL	□ ALLEGED
N/A	04 NARRATIVE DESCRIPTION		
01 D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: N/A	02 C OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED
01 DE. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: N/A	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED
01 12 F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: (Acres)	02 OBSERVED (DATE: 10/15/85) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	XXALLEGED
DOTATE DEPTH TO THE PROPERTY OF THE PROPERTY O	02 © OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	XXPOTENTIAL	□ ALLEGED
01 H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED:	02 OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	□ ALLEGED
N/A			
D1 D1. POPULATION EXPOSURE/INJURY D3 POPULATION POTENTIALLY AFFECTED: N/A	02 (1) OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	□ ALLEGED

SEPA

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

Į I.	IDEN1	IIF	CAT	ION
01	STATE	02	SITE	NUMBER
	DE	ı		

	e a)			
01 □ J. DAMAGE TO FLORA 04 NARRATIVE DESCRIPTION	02 🗆 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A				
11 K. DAMAGE TO FAUNA 14 NARRATIVE DESCRIPTION (include name(s) of species)	02 🗆 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A				
11 ☐ L. CONTAMINATION OF FOOD CHAIN 14 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	☐ POTENTIAL	□ ALLEGED
N/A	×			
01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Sp@s/runoll/standing biquids/legking drums)	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A	04 NARRATIVE DESCRIPTION			
D1 □ N. DAMAGE TO OFFSITE PROPERTY D4 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A				
01 O. CONTAMINATION OF SEWERS. STORM DRAINS. 04 NARRATIVE DESCRIPTION	WWTP₃ 02 □ OBSERVED (DATE:)	□ POTENTIAL	☐ ALLEGED
N/A				
01 P. ILLEGAL/UNAUTHORIZED DUMPING 04 NARRATIVE DESCRIPTION	02 OBSERVED (DATE:)	□ POTENTIAL	□ ALLEGED
N/A				
D5 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, C	OR ALLEGED HAZARDS			
I. TOTAL POPULATION POTENTIALLY AFFECTED:	1700 ±			
V. COMMENTS				

VIII. References

References



- I. Investidation of 70% contamination at levie; havais Contouration. IAC Fattin Inc. 988 West Valley Force Road. A.C. Gas of A. Watley Foods Re 19-61. June 1785. Hazardous Waste file 08 00 980.
- 2. Letter. Michael A. Accar. SE PAGEO to Rober. A. Elmoernam. Handy defined Inc. 18/8/83. Hazard Magre Fale. GT & UEC
- 3. Latter. Donald R. Price SpC Martin of Corers ... Larertam Harry Harren Jo. water Supply File De DNSSC.
- Letter Michael e. Locar. US L/980, to "tisst T Lifterian e/L' E Waser Subsiv 191es DG. JHREC.
- 5. Letter Donald # Prite E.D. eroin to Mighne. -. Novaci (1 1 v/dia mass) Supply files DE DNREC 5/17/85.
-). Steve Johnson RAD Person so to a w. Gabara 2 $^{\circ}$ 75% . This evaluation waste files DE JASE.
- J. Thomas R. Walen. Gamba. Hatala to sector sences u. . Hai in . 794.
- A. Pobert J. Tourey DE DIMEC to wavne Warlog ... E. afa Triento.
- 7. Letter Steve Connoon ENG Martin to Letter Lafett Li 1990 Suffice.
 Hazardous Waste files DE DNREG.
- für Letter Michael A. Asser. po bullo to Stewa Lamassa. 141 Assera 171 1711.
- 11. Letter Michael A. Accar, DE Juffer to Every Journey Int. North A. 1995.
- 42. Telecon. Steve Johnson SMC. Martin int. if #apul Geograph 48.
- to. Letter Steve Johnson, SMC Martin to Mike Socot as skill day 5x55. Water Guoriv files 02 JMREG.
- le. The expelentation of General Marks. And Lauray Televiers. The Electrical P.S. Fickers, News Callings of the Communications.
- AE. TOLE FACTORY, Term County Lelaware Labors of Life
- Was 1999 Canada.

IX. Appendix I



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNEIT SQUARE. PA. 19348 PHONE: 215-888-7295

TO:

Steve Johnson

SMC MARTIN
P. O. Box 859

Valley Forge, PA 19482

FROM:

Gerald R. Umbreit, Ph.D.

DATE:

November 6, 1985

GREENWOOD NO. GL 6802

: 5

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6802-1 thru -4: Camdel Metals Corp. (listed below).

SUMMARY:

These samples were examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6802-	Sample Identity	C ₂ HC1 ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ C1 ₄
1	RW-1 11/4/85	ا/وبر 17	0	0	1.7 µg/L
2	Pond "	ع/وبر 5.8	0	0	0
3	Spray "	س/L سو/L	0	0	ع/وبر 0.2
4	MW-19 "	0	0	0	0



GREENWOOD LABORATORIES



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

-

TO:

(b) (4)

SMC Martin
P. O. Box 859

Valley Forge, PA

PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

October 30, 1985

GREENWOOD NO. GL 6794

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6794-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

GL # 6794-	Sampl	e Identity	C ₂ HCl ₃	сн ₃ сс1 ₃	CHC1 ₃	C ₂ Cl ₄
1	Ground Spray	10/28/85	2.4 ug/L	0	0	0.2 ug/L
2	RW-1	п	31 ug/L	0	0	1.6 ug/L
3	Pond	п	1.8 ug/L	0	0	0
4	MW-19	u	0	0	0	0





ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19346

PHONE: 215-388-7295

TO:

(D) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

DATE:

October 24, 1985

GREENWOOD NO. GL 6786

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6786-1 thru -4: Camdel Metals Corporation.

Ph.d.

SUMMARY:

GL # 6786-	Sample Identity	C ₂ HC1 ₃	сн ₃ сс1 ₃	CHC1 ₃	C ₂ C1 ₄
1	Ground Spray 10/21/85	3.1 ug/L	0	0	0
2	RW-1 10/21/85	37 ug/L	0	0	1.9 ug/L
3	MW-19 "	0	0	0	0
4	Pond "	0	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-366-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4)

Ph.D.

DATE:

October 14, 1985

GREENWOOD NO. GL 6770

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6770-1 thru -4: Camdel Metals Corporation

SUMMARY:

GL # 6770-	Sample Identity		C2HC13	CH ₃ CC1 ₃	CHC1 ₃	^C 2 ^{Cl} 4
1	10/11/85	R w - 1	34 ug/L	0	0	2.2 ug/L
2	II.	Pond	1.8 ug/L	0	0	0
3	II	Lawn Spray	4.9 ug/L	0	0	0.2 ug/L
4	,II	MW-19	0	0	0	0





ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

DATE:

October 8, 1985

GREENWOOD NO. GL 6765

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6765-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

GL # 6765-	Samp	ole Identity	C ₂ HC1 ₃	СH ₃ СС1 ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	10/4/85	35 ug/L	0	0	1.8 ug/L
2	Pond	и	6.3 ug/L	0	0	0
3	Field Spray	u u	3.4 ug/L	0	0	0.2 ug/L
4	MW-19	и	0	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

September 19, 1985

GREENWOOD NO. GL 6750

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6750-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6750-	Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	9/19/85 Pond	0	0	0	0
2	" Ground Spray	4.5 ug/L	0	9	0.3 ug/L
3	" MW-19	0	0	O	0
4	" RW-1	39 ug/L	0	0	1.8 ug/L



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

10:

(b) (4)

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

,Ph.D.

DATE:

September 17, 1985

GREENWOOD NO. GL 6743

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6743-1 thru -4: Camdel Metals Corporation

SUMMARY:

GL # 6743-		Sample Identity	C ₂ HCl ₃	CH3CC13	CHC1 ₃	_c ₂ c1 ₄ _
1	9/13/85	RW-1	39 ug/L	0	. 0	2.0 ug/L
2	11	MW-19	0	0	0	0
3	Ħ	Pond	0	0	. 0	0
4	n	Spray Field	4.1 ug/L	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

September 10, 1985

GREENWOOD NO. GL 6740

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6740-1 thru -3: Camdel Metals Corporation

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedure. The analytical results are as follows:

GL # 6740-		Sample Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	9/6/85	RW-1	30 ug/L	0	0	0.3 ug/L
2	n	Pond	0	0	0	0
3	11	Ground Spray	3.8 ug/L	0	0	0



CHOITAL (Hed)



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.d.

DATE:

September 2, 1985

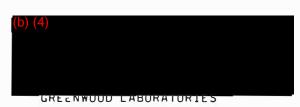
GREENWOOD NO. GL 6731

SUBJECT: Examination of water samples for trichloroethylene and related compounds.

SAMPLES: GL 6731-1 thru -6: Camdel Metals Corporation

SUMMARY:

GL # 6731-	2	Sample IDentity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	8/30/85	RW-1	34 ug/L	0	0	1.8 ug/L
2	"	Ground Spray	2.7 ug/L	0	0	0
3	"	Pond	0	0	0	0
4	11	MW-19	0	0	0	0
5	n	MW-5	7.2 ug/L	0	0	0
6	11	MW-6	4.8 ug/L	0	0	0





ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

EENNETT SQUARE. PA. 19348PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA

19482

FROM:

(b) (4)

Ph.D.

DATE:

August 26, 1985

GREENWOOD NO. GL 6726

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6726-1 thru -4: Camdel Metals (listed below)

SUMMARY:

GL # 6726-	Sampl	e Identity	C ₂ HCl ₃	CH ₃ CCl ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	8/23/85	170 ug/L	0	0	1.8 ug/L
2	Ground Spray	11	2.9 ug/L	0	0	0
3	Pond	11	4.5 ug/L	0	0	0
4	MW-19	п	0	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

August 22, 1985

GREENWOOD NO. GL 6723

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6723-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6723-	Sample Identity		C ₂ HC1 ₃	CH3CC13	CHC13	C ₂ Cl ₄
1	RW-1	8/16/85	44 ug/L	0	0	2.3 ug/L
2	Ground Spray	II .	4.6 ug/L	0	0	0
3	Pond	н	0	0	0	0
4	MW-19	11	0	0	0	0





903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19345

PHONE: 215-388-7295

10:

(b) (4)

SMC Martin P. O. Box859

Valley Forge, PA 19482

FROM:

(b) (4)

, Ph.D.

GREENWOOD NO. GL 6713

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6713-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

These samples have been examined by gas chromatogrpahy using the previously desscribed procedure. The analytical results are as follows:

GL # 6713-	Sampl	e Identity	C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	RW-1	8/9/8	46 ug/L	0	0	2.5 ug/L
2	Ground Spray	ir .	0	0	0	0
3	Pond	п	7.1 ug/L	0	0	0
4	MW-19	H	0	0	0	Ω



Camdel Metals Corp.

GRU: del

Copy: (b) (4), handy & Harman Tube Co.; (b) (4)

200

Greenwood Laboratories

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-368-7205

TO:

SMC Martin P. O. Box 859

Valley Forge, PA 19482

FROM:

Ph.D.

DATE:

August 8, 1985

GREENWOOD NO. GL 6710

SUBJECT:

Examination of water samples for trichloroethylene and related compounds.

SAMPLES:

GL 6710-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

GL # 6710	Sample Identit	<u>y</u>	C ₂ HCl ₃	CH3CC13	CHC1 ₃	
1	RW-1 8/6/85 12:15 pm	8/6/85	40 ug/L	0	0	1.9 ug/L
2	Ground Spray 12:18 pm		0	0	0	0
3	Pond 12:10 pm	ŧŧ	0	0	0	0
4	MW-19 12:20 pm	"	0	0	0	0

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC MARTIN

P. O. Box 859

Valley Forge, PA

19482

FROM:

b) (4)

Ph.D.

DATE:

August 6, 1985

GREENWOOD NO. GL 6706

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6706-1 thru -4: Camdel Metals Corp.

SUMMARY:

GL # 6706-	W========	Sample Ide	entity_		C ₂ HCl ₃	CH ₃ CC1 ₃	CHC13	C ₂ Cl ₄
1	RW-1 8	8713 8/2/85	11:45	am	35 ug/L	0	0	2.2 ug/L
2	Spray	и и	11:50	am	0	0	0	0
3	Pond	II fr	11:47	am	0	0	0	0
4	MW-19		11:58	am	0	0	0	0



GREENWOOD LABORATORIES

GRU: del

Copy: (b) (4) , Handy & Harman; (b) (4) , Camdel Metals Corp.

ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIRE

BENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC MARTIN
P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

August 1, 1985

GREENWOOD NO. GL 6705

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6705-1 thru -4: Camdel Metals Corporation (listed below)

SUMMARY:

GL # 6705-	Sample Id		C ₂ HCl ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄	
1	Ground (Field Spray	7/30/85	11:18 am	19 ug/L	0	0	0
2	RW-1	11	11:06 am	37 ug/L	0	0	2.1 ug/L
3	Pond	11	11:11 am	0	0	0	0
4	MW-19	11	11:30 am	0	0	0	0



ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE. PA. 19348

PHONE: 215-388-7295

TO:

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

) (4)

DATE:

July 30, 1985

GREENWOOD NO. GL 6702

SUBJECT:

Examination of water samples for trichloroethylene and related

compounds.

SAMPLES:

GL 6702-1 thru -4: Camdel Metals (listed below)

Ph.D.

SUMMARY:

GL # 6702-		Sample Identity				C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	C ₂ Cl ₄
1	R-7/26	RW-1	7/26/85	10:24	am	32 ug/L	0	0	2.0 ug/L
2	FS-7/26	Field	SSpray	10:34	am	0	0	0	0
3	P07/26	Pond	7/26/85	10:30	am	0	0	0	0
4	MW-7/26	MW-19	ıı	10:48	am	0	0	0	0





ANALYTICAL CHEMISTS AND CONSULTANTS

903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348

PHONE: 215-388-7295

TO:

Steve Johnson

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

Gerald R. Umbreit, Ph.D.

DATE:

July 24, 1985

GREENWOOD NO. GL 6701

SUBJECT:

Examiantion of water samples for trichloroethylene and related

compounds.

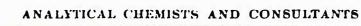
SAMPLES:

GL 6701-1 thru -4: Camdel Metals (listed below)

SUMMARY:

GL # 6701-	Sample Identity	C2HC13	СН ₃ СС1 ₃	CHC1 ₃	^C 2 ^{C1} 4
1	Pond 7/23/85	0	0	0	0
2	RW-1 "	37 ug/L	0	0	2.5 ug/L
3	MW-19 "	0	0	0	0
4	Ground Spray 7/23/85	4.0 ug/L	0	0	0





903 E. BALTIMORE PIKE

KENNETT SQUARE, PA. 19348
PHONE: 215-366-7295

TO:

0878 841

(b) (4)

SMC Martin

P. O. Box 859

Valley Forge, PA 19482

FROM:

(b) (4)

Ph.D.

DATE:

July 22, 1985

GREENWOOD NO. GL 6690 & GL 6696

SUBJECT:

Examination of water samples for trichlornethylene and related

compounds.

SAMPLES:

GL 6690-1 thru -4

Camdel Metals, 7/16/85, listed below

GL 6696-1 thru -4

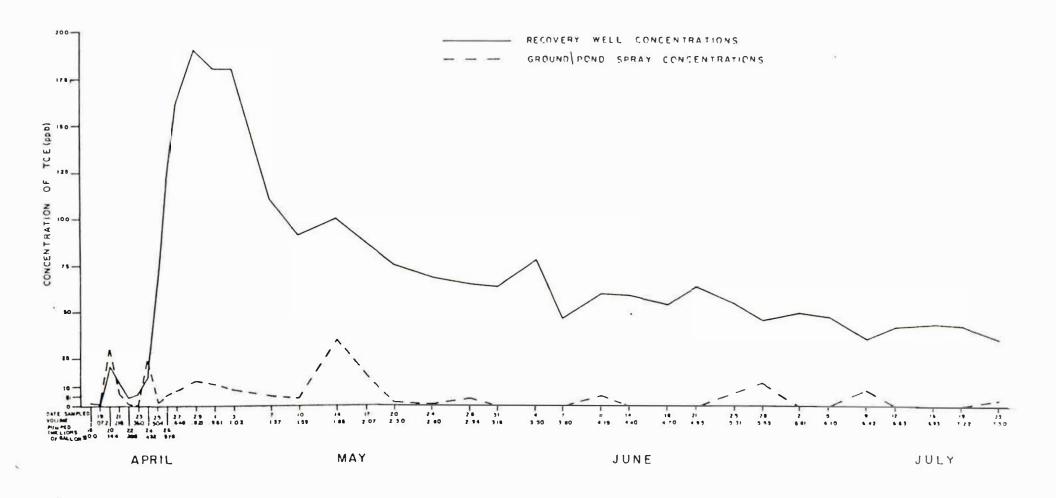
", 7/19/85,

SUMMARY:

These samples have been examined by gas chromatography using the previously described procedures. The analytical results for these two sets of samples are as follows:

GL # 6690-	Sample Identity	C ₂ HC1 ₃	CH ₃ CC1 ₃	CHC1 ₃	^C 2 ^{C1} 4
Ĭ	RW-1 7/16/85	44 ug/L	0	0	2.2 ug/L
2	Ground Spray 7/16/85	0	0	0	0
3	Pond 7/16/85	0	0	0	0
4	MW-19 "	0	0	0	0
GL # 6696-					
1	RW-1 7/19/85	43 ug/L	0	0	2.2 ug/L
2	Pond "	5.3 ug/L	0	0	0
3	Ground Spray 7/19/85	0	0	0	0
4	MW-19 7/19/8	0	0	0	0

X. Appendix II





(Red)

Desktop Site-Inspection

Report

For

Camdel Metals

.. DE 115

PA/SI Cooperative Agreement

Number V-003350-01-0

Presented to: Harold G. Byer, Acting Chief

Site Investigation and Support Section

U.S. EPA Region III

Laura Boornazian

PA/SI State Coordinator

Prepared by: Delaware Department of Natural Resources and

Environmental Control, Air & Waste Management Section

Brad L. Smith - PA/SI Investigator Eileen M. Hack- PA/SI Coordinator



I. IDENTIFICATION

01 STATE 02 SITE NUMBER

SEPA	PART 1 - SITI	SITE INSPECT E LOCATION AND	ION REPORT INSPECTION INFORMA	TION	115
II. SITE NAME AND LOCATION					
O1 SITE NAME ILOGII COMPON OF DESCRIPTION OF	no 0/ 84e)		02 STREET, HOUTE NO., OR SPE	CIFIC LOCATION IDENTIFIER	
Camdel Metals			Doube 10		
OJ CITY			Route 10	6 COUNTY	OTCOUNTY SE CONS
Camden			DE 19934	Kent	001 01
	ONGITUDE	O TYPE OF OWNERSME A. PRIVATE F. OTHER	☐ B. FEDERAL ☐	C. STATE C D COUNTY	
III. INSPECTION INFORMATION					
01 DATE OF INSPECTION 02.5	TE STATUS	03 YEARS OF OPERATE	ON		
MONTH DAT YEAR	S ACTIVE	19		UNKNOWN	
04 AGENCY PERFORMING INSPECTION (CA		BEGA	PUNG YEAR ENDING YEAR		
□ A. EPA □ B. EPA CONTRACTO			E C. MUNICIPAL E D. MU	NICIPAL CONTRACTOR	
Z E STATE Z F STATE CONTRAC	10	turne of femi	C G. OTHER		(Rette of ten
		Name of Irms	C G. O'MEN	1500049:	1
05 CHIEF INSPECTOR		06 TITLE	3.50	07 ORGANIZATION	OB TELEPHONE NO
Brad L. Smith			ental Scientist	DE DNREC	802) 323-4544
09 OTHER INSPECTORS		10 TILE .		11 ORGANIZATION	CH 3AOH93J3T ST
					()
					()
					1()
					1 /
				,	()
					()
13 SITE REPRESENTATIVES INTERVIEWED		14 TITLE	15ADORESS		16 TELEPHONE NO
		P			()
					()
					1
					()
					()
					()
n					()
17 ACCESS GAINED BY 18 TIME OF	FINSPECTION	19 WEATHER CONDI	TIONS		
PERMISSION WARRANT	res ection				
IV. INFORMATION AVAILABLE FR	OM				
01 CONTACT		02 OF IAPPRENO DE	arani		03 TELEPHONE NO
Brad L. Smith		DE DNREC	Air & Waste Man	agement	(302) 323-4544
04 PERSON RESPONSIBLE FOR SITE WSP	ECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Brad L. Smith		DE DNREC	Air & Waste Mgt	.302-323-4544	3 ,7 ,86

I. IDENTIFICATION OI STATE OZ SITE NUMBER

YE	PA			TION REPORT		DE 11	.5
II WACTE C	TATES, QUANTITIES, AN	ID CHARACTE	RISTICS				
OI PHYSICAL S	E SLURRY R. FRIES XF LIQUID E _ G GAS	02 WASTE QUAN	TITY AT SITE of DISTRIBUTIONS OF THE STATE O	O3 WASTE CHARACTI X A TOXIC B B CORRO C RADIOA C D PERSIS	CTIVE - G FLAME	BLE I HIGHLY TIOUS J EXPLOS MABLE H-REACTI	VE PATIBLE
III. WASTE T	YPE						
CATEGORY	SUBSTANCE N	IAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS		
SLU	SLUDGE				Ü		
OLW	OILY WASTE						
SOL	SOLVENTS		207	Tons/vr.	disposed o	f and or rec	overed
PSD	PESTICIDES				off site.		
осс	OTHER ORGANIC CH	HEMICALS					
ЮС	INORGANIC CHEMIC	ALS			Į.		
ACD	ACIDS						
BAS	BASES						
MES	HEAVY METALS						
IV. HAZARD	OUS SUBSTANCES . See A	poeres for mest freque	nni case CAS Aumberti				
O1 CATEGORY	02 SUBSTANCE N	AME	03 CAS NUMBER	04 STORAGE DISE	POSAL METHOD	05 CONCENTRATION	OB MEAS JPE 21 CONCENTRATE
Sol	Trichloroethylene		79-01-6	solvent rec	overy off	1.7-0	PPh
Sol	Benzene		71-43-2	İ	DI CC.	94.0	PPb
Sol	Tetrachloreot	hvlene	999			1.6	PPb
Sol	Toluene		999			7.3	PPb
Sol	Ethyl benzene		100-41-4			49.0	PPb
Sol	0 - Xylene	7.00	999			21.0	PPb
Sol	M - Xylene		999			43.0	PPb
Sol	P - Xylene		999			145.0	PPb
						1	
V. FEEDSTO	CKS ,see 400000 100 CAS Acc	ert.		***************************************			
CATEGORY			OZ CAS NUMBER	CATEGORY	O1 FEEDSTO	OCK NAME	02 CAS NUMBER
FDS	Toluene		1.08-88-3	FDS	<u></u>		
FDS	Xylene		1330-207	FDS			
FDS	71/1:0110		1	FDS			
FDS		-		FDS			

State of Delaware Department of Natural Resources and Environmental Control, 1) Hazardous Waste files. Hazardous Waste notification form.

Hazardous Waste Files, Letter Michael A. Apgar, DE DNREC to Robert H. 2) Zimmerman, Handy Harman Tube Co., 12/6/83



I. IDENTIFICATION

	SPECTION REPORT AZARDOUS CONDITIONS AND INCIDENT	DE	115
IL HAZARDOUS CONDITIONS AND INCIDENTS			
01 & A. GROUNDWATER CONTAMPATION 03 POPULATION POTENTIALLY AFFECTED: 1,700	02 OBSERVED (DATE 1982) 04 NARRATIVE DESCRIPTION	O POTENTIAL	□ ALLEGED
Groundwater contaminated with Tr	ichloroethylene		
01 G B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED:	02 C OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	G POTENTIAL	C ALLEGED
Unknown			
01 C C CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED:	02 D OBSERVED (DATE:) 04 NARRATIVE DESCRIPTION	G POTENTIAL	C ALLEGED
Unknown			*
01 D. FIRE/EXPLOSIVE CONOMIONS 03 POPULATION POTENTIALLY AFFECTED.	02 G OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	C POTENTAL	C ALLEGED
Unknown	•		
01 C E DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED.	02 C OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	C POTENTIAL	Z ALLEGED
Unknown			
01 & F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED:	02 D OBSERVED IDATE 10/15/84) 04 NARRATIVE DESCRIPTION	C POTENTIAL	CALLEGED
A Trichloroethylene spill on 10/15,	/85 contaminated soil at th	e site.	t:
01 E.G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED	02 C OBSERVED IDATE) 04 NARRATIVE DESCRIPTION	E POTENTIAL	C ALLEGED
Groundwater is the sole source of wells have been contaminated with	f water, supply in the area. TCE. Contamination has n	On site of	monitoring d off site.
01 [] H. WORKER EXPOSURE/MJURY 03 WORKERS POTENTIALLY AFFECTED.	02 OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	C ALLEGED
Unknown			
01 [] I. POPULATION EXPOSURE/INJURY .03 POPULATION POTENTIALLY AFFECTED:	02 C OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	□ POTENTIAL	□ ALLEGED
Unknown			



L DENTIFICATION

PART 3 - DESCRIPTION OF H	SPECTION REPORT AZARDOUS CONDITIONS AND INCIDENT:	S DE	115
IL HAZARDOUS CONDITIONS AND INCIDENTS			
01 & J. DAMAGE TO FLORA 04 NARRATIVE DESCRIPTION	02 - OBSERVED (DATE:)	- AOTENTAL	□ ALLEGED
Unknown			
01 H. DAMAGE TO FAUNA ON NARRATIVE DESCRIPTION INCOME NAMED OF MARKET	02 (DESERVED (DATE)	POTENTIAL	C ALLEGED
2			
Unknown 11 C L. CONTAMINATION OF FOOD CHAIN 104 HARRATIVE DESCRIPTION	02 - OBSERVED (DATE)	[] POTENTIAL	S ALLEGED
Unknown	9 8		
01 II M. UNSTABLE CONTAINMENT OF WASTES (1864) State Containment of Wastes (1864) Stat	02 - OBSERVED (DATE) 04 NARRATIVE DESCRIPTION	E POTENTIAL	Z ALLEGED
Unknown			
01 & N. DAMAGE TO OFFSITE PROPERTY 04 NARRATIVE DESCRIPTION	02 T OBSERVED (DATE)	C POTENTIAL	CALLEGED
Potential contamination of off site	groundwater.		Ж
01 TO CONTAMINATION OF SEWERS, STORM DRAINS, WWTP 04 NARRATIVE DESCRIPTION	s 02 C OBSERVED (DATE)	= POTENTIAL	I ALLEGED
Unknown			
01 E P ILLEGAL/UNAUTHORIZED DUMPING 04 NARRATIVE DESCRIPTION	02 T OBSERVED (DATE)	POTENTIAL	Z ALLEGED
Unknown			
05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLE	EGED HAZARDS		
Unknown			M 84 M
III. TOTAL POPULATION POTENTIALLY AFFECTED: IV. COMMENTS	_1.7.0.0		
TO SOMMETTO			
V. SOURCES OF INFORMATION CON LABORATION OF PARTY NOT	Martin the fee reserve		
DE DNREC "Hazardous Waste" and "	Water Supply"files.		
*	·		



	IFICATION
O1 STATE	02 SITE NUMBER
DE	115

SEFA		SITE INS		TION	- 1	DE 115
IL PERMIT INFORMATION						
01 TYPE OF PERMIT ISSUED	02 PERMIT NUMBER	03 DATE (SSUED	04 EXPRATION DATE	05 COMMENTS	
		1				
B. UIC	1	+				
☐ C. AIR	 	_				
D. RCRA		+				
□ E. RCRA INTERIM STATUS	-	+	_			
F. SPCC PLAN	1	+	_			
	1	+	_			
G: STATE:Special	-					
		+				
□ 1. OTHER (Specify)	-	-				
S J. NONE						
III. SITE DESCRIPTION			_			
01 STORAGE/DISPOSAL (Choca ad Indi anary)	2 AMOUNT 03 UNIT O	FMEASURE	04 TR	EATMENT ICHE & PAR &	1	05 OTHER
☐ A. SURFACE IMPOUNDMENT			DA	NCENERATION		E A. BUILDINGS ON SITE
□ B. PILES	7 drum		□ 8 .	UNDERGROUND BLIE	CTION	E A. BULDAUS ON SIE
B C. Driomo. ADOVE GRIDORD	druii	s/yr.		DEMCAUPHISICA	L	l
D. TANK, ABOVE GROUND				BIOLOGICAL		DE AREA OF SITE
F. LANDFILL				WASTE OIL PROCESS		OR AVEA OF SITE
G. LANDFARM				SOLVENT RECOVERY OTHER RECYCLING		15
☐ H. OPEN DUMP				OTHER	RECOVERY	
D I. OTHER		16	J	A-	1	1
07 COMMENTS						
Facility is consider stored in drums for landfill.						
IV. CONTAINMENT						
01 CONTAINMENT OF WASTES (Creck are)						
2 A. ADEQUATE, SECURE	☐ B. MODERATE	□ C. •	NADEOL	JATE, POOR	D. INSECU	RE, UNSOUND, DANGEROUS
02 DESCRIPTION OF DRUMS, DIFUNG, LINERS, 8	ARRIERS, ETC.					<u> </u>
Waste is stored in a a RCRA permitted lan		for	less	than 90 da	ys and di	sposed of in
V. ACCESSIBILITY						
01 WASTE EASILY ACCESSIBLE. YES	NO NO					
A fence surrounds the						
VI. SOURCES OF INFORMATION (C	AND THE PROPERTY OF THE PROPERTY OF	~	0/18/			
DE DNREC Hazardous	waste files,					
Hazardous Waste not	ification form	•				



L IDENTIFICATION							
01 STATE	02 SITE NUMBER						
DE	115						

SEPA	SITE INSPECTION REPORT PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA							
IL DRINKING WATER SUPPLY								
01 TYPE OF DROWING SUPPLY		02 STATUS				0.3	DISTANCE TO SITE	
SURFACE	WELL	ENDANGERE	n AFFF	CTED	MONITORED			
COMMUNITY A. D	B	A. O	B.		C. \Box	A.	0.7 (m)	
NON-COMMUNITY C. [Ø£Ô⊠	D. O	Ε.		F. 30	8	0.1 (mi)	
DL GROUNDWATER								
O1 OPCUPOWATERUSE IN VENITY (CHANGE)								
* A. ONLY SOURCE FOR DRINKING B. CREMENG COMMERCIAL, INDUSTRIAL PROGATION D. NOT USED, UNUSEABLE (COMMERCIAL, INDUSTRIAL PROGATION D. NOT USED, UNUSEABLE (COMMERCIAL, INDUSTRIAL PROGATION BY SOURCE PROGATION DESCRIPTION DE								
02 POPULATION SERVED BY GROUND WATER 3900 03 DISTANCE TO NEAREST DRINKING WATER WELL 0.15 (mil)								
04 DEPTH TO GROUNDWATER	05 DIRECTION OF GRO	DUNDWATER FLOW	06 DEPTH TO		OF AQUEEN	۵	08 SOLE SOURCE AQUIFER	
7-9(m)	NE		7-9	£PRN (ft)	25,000gpd	LET.	□ YES E NO	
Domestic wells a			miles c	of the	site.		ı.	
							i.e.	
10 RECHARGE AREA			110000					
TES COMMENTS			☐ YES COMMENTS XI NO					
IV. SURFACE WATER								
O1 SURFACE WATER USE (CASC) SHOP) A. RESERVOIR, RECREATION DRINKING WATER SOURCE		N. ECONOMICALLY IT RESOURCES	. oc. c	COMMERCIA	AL. INDUSTRIAL	1 0	D. NOT CURRENTLY USED	
02 AFFECTEDIPOTENTIALLY AFFECTED 8	ODIES OF WATER							
NAME:					AFFECTED		DISTANCE TO SITE	
Newell Branch							0.4	
Tidbury Creek						_	3 O (mi)	
Saint Jones River						30		
V. DEMOGRAPHIC AND PROPERT	Y INFORMATION					_		
01 TOTAL POPULATION WITHIN	7 IN CHARTON			02	DISTANCE TO NEARS	ST POP	JLATION	
	YO (2) MILES OF SITE	THREE (S) MILES OF	- 1				
A. 3 576 B. 6,798 C.12,494 NO OF PERSONS NO OF PERSONS NO OF PERSONS NO OF PERSONS						(mi)		
03 NUMBER OF BUILDINGS WITHIN TWO (2	MLES OF SITE		04 DISTANC	E TO NEARES	T OFF-SITE BUILDING			
2,000					_0.1_		mi)	
05 POPULATION WITHIN VICINITY OF SITE	Provide recovery described at	MANUS OF SOCIAL CO. SEC.		. ~	-	N U		
Camden-Wyoming is located north of the site.								

ة ك	

	I. IDENTIFICATION						
Ì	OI STATE	02 SITE NUMBER					
	DE	115					

SITE INSPECTION REPORT OI STATE 02 SITE MUMBER DE 115						ER	
VILIA	PART	5 - WATER, DEMOGRAPH	IC, AND ENVIRO	NMENTAL D	ATA L	1115	
VI. ENVIRONMENTAL INFORMA							
01 PERMEABILITY OF UNSATURATED 2:		D B. 10 ⁻⁴ − 10 ⁻⁶ cπ/sec	C. 10 ⁻⁴ = 10 ⁻³ cm	/sec 30 D.GR	EATERTHAN	10 ⁻³ cm/sec	
02 PERMEABALTY OF BEDROCK (Chack	mei						
☐ A. IMPERM	EABLE 10-6 owner	B. RELATIVELY IMPERMEABL	E C. RELATIVEL	Y PERMEABLE	D. VERY	PERMEABLE	
03 DEPTH TO BEDROCK	04 DEPTH O	F CONTAMINATED SOIL ZONE	05 SOL DE	1			
>1000 (ft)		3.0	unkr	OWD			
06 NET PRECIPITATION	07 ONE YEA	A 24 HOUR RAINFALL	OB SLOPE SITE SLOPE	DIRECTION OF	SITE SLOPE	TERRAIN AVER	AGE SLOPE
(in)	-	(In)	0_%	East			×
ON FLOOD POTENTIAL SITE IS IN UNK NOWN YEAR FLO		D SITE IS ON BARRI	ER ISLAND, COASTA	L HIGH HAZART	AREA, RIVER	INE FLOODWAY	
SITE IS IN WITH TOWN YEAR FLO			12 DISTANCE TO CALL	ICAL HABITAT NO		u .	
ESTUARINE		OTHER			_	 _ (mi)	
2.7			ENDANGERS	ED SPECIES:			
13 LAND USE IN VICANITY	В	(mi)	Bearing	ED SPECIES.			
DISTANCE TO:		₹/					
COMMERCIAL/INDUSTR	UAL	RESIDENTIAL AREAS, NATIO FORESTS, OR WILDUF		PRIME	AGRICULTU AG LAND	JRAL LANDS AG LAN	O.
A(mi)		8	(mi)	c . 0.001	(mi)	D. 0.001	(mi)
14 DESCRIPTION OF SITE IN RELATION	TO SURADUN	IDING TOPOGRAPHY		7			
Site is located	in fl	at land.					
1 20 10 1000000							
1							
						20	
VII. SOURCES OF INFORMATIO	N ICO MARCA	Crateroccia a g. Maia Reg Marque aranga	i. reporte				
		aste files, topogr ware. R. W. Sund				ty of grou	ındwater
	,						
3-							



POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 6-SAMPLE AND FIELD INFORMATION

	L IDENTIFICATION				
		02 SITE NAMER			
1	DE	115			

WLI M	P	ART 6 - SAMPLE AND FIELD INFORMATION	115
E. SAMPLES TAKEN			
SAMPLE TYPE	01 NAMER OF SAMPLES TAKEN	02 SAMPLES SENT TO	OJ ESTMATED DATE
GROUNDWATER	х	Sampling program began 4/84 by SMC Martin	
SURFACE WATER		Inc. Camdel Metals consultant data is	
WASTE		available from DNREC files and Camdel	
AR		Metals.	
FUNOFF			
SPLL SPLL			
SOL.	х		
VEGETATION			
OTHER			
III. FIELD MEASUREMENT	TS TAKEN		
DI TYPE	02 COMENTS Site Insp	pection Report is based on available date. N	o field
		ents were taken.	
)			
	ь		
IV. PHOTOGRAPHS AND	MAPS		
01 TYPE GROUND GA	VERTAL	02 IN CUSTODY OF	
03 MAPS	CATION OF MAPS	x	
V. OTHER FIELD DATA C	OLLECTED Provide Aurabine de	IC (Brian)	

VI. SOURCES OF INFORMATION (Can sancale relationers) . I state that before mounts

DE DNREC Water Supply files, Letter, Michael Apgar, DE DNREC to Robert M. Zimmerman Handy Harman Tube Co. 12/6/83.

≎ EPA	P	SITE INSPI	ARDOUS WASTE SITE ECTION REPORT NER INFORMATION	I. IDENTIFI 01 STATE 0 DE	CATION 2 SITE NUMBER 115
II. CURRENT OWNER(S)			PARENT COMPANY		
Handy & Harman Tube		02 D+B NABER	OS NAME		09 D+ B NUMBER
Company Inc.					_
		04 SIC CODE	10 STREET ADORESS (P.O. Box. MO.O., orc.)		11 SIC CODE
Township & Whitehall Road	#3	07 ZIP COOE	12 074	112 STATE	14 ZIP CODE
	PA	19401		, state	. 422 6652
01 NAME		02 D+8 NUMBER	DB NAME		09 D+8 NUMBER
OJ STREET ADDRESS (P.O. BOL AVD #. onc.)		04 SIC CODE	10 STREET ACCIDESS IP O. Box. AFD F, occ.)		11 SIC CODE
05 CTY 0	STATE	07 ZP COOE	12 CITY	13 STATE	14 ZP CODE
O1 NAME		02 D+8 NUMBER	OB NAME		09 D + B NUMBER
03 STREET ADDRESS (P O Bos. N/O F. occ)		04 SIC CODE	10 STREET ADDRESS (P O Box, APO e. occ)	EET ADDRESS IP O Box, APD P. onc ;	
03 CTTY	STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP COD€
1 NAME 02 C		02 D+8 MJJBER	OB NAME 09		090+8 NUMBER
03 STREET ADDRESS IP Q BOX AFO # OFC !	SIP C Box AFOP OC.		10 STREET ADDRESS IP 0 Box, MFD #. onc)		1 1 S/C CODE
OS CITY	6 STATE	O7 ZIP COOE	12 CITY	13 STATE	14 ZP COOE
III. PREVIOUS OWNER(S) (Las most recent from			IV. REALTY OWNER(S)	nel recent has.	
01 NAME		02 0 + 8 NUMBER	01 NAME		020+8 NUMBER
03 STREET ADDRESS (P.O. Box. AFD P. arc.)		04 SIC CODE	03 STREET ADDRESS (P O Box, RFD+ occ.)		.04 SIC CODE
05 C/TY	STATE	07 ZIP COOE	05 CITY	OE STATE	O7 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+8 NUMBER
03 STREET ADDRESS (P.O. Box AFD F. orc.)		04 SIC CODE	03 STREET ACCURESS (P O Box. NFO + OC.)		04 S/C CODE
05 CTY 0	STATE	07 ZP CODE	OS CITY	OB STATE	O7 ZIP CODE
01 NAME		02 D+8 NUMBER	O1 MAME		02 D+8 NUMBER
03 STREET ADDRESS (P C Box AFO F orc)		04 SIC COOE	OJ STREET ADORESS (P.O. Box, RFD+, orc.)		04 SAC CODE
OSCITY 0	STATE	07 2₽ COOE	OS CITY	OS STATE	O7 ZIP CODE
V. SOURCES OF INFORMATION (Can marche)	Jowess.		- Appelli		1

Delaware DNREC Hazardous Waste files, <u>SMC Martin Investigation of Groundwater</u> contamination at Camdel Metals



& EPA		SITE INSPECTION REPORT			O1 STATE 0	IDENTIFICATION STATE 02 SITE MANAGER DE 115		
A CURRENT OPERAT	OR man	P 0000)		OPERATOR'S PARENT COM	PANY nemen			
1 NAME			D2 D+8 NLABER	10 MANE Handy Harman	Tube Co. Inc	110+8 MJMBER		
Camdel Me	tals					- NA		
DI STREET ADDRESS (P.O.	Da. 800 F. FR. 1		04 SIC CODE	12 STREET ADDRESS (P O Boo. RFD P.	erc.)	13 SIC COD€		
Drawer F				Township & Whiteha	11 Road #3			
YIOK		DO STATE	07 ZP COOE	14 CITY	15 STATE	16 ZP CODE		
Camden		DE	19934	Norristown	PA	19401		
OB YEARS OF OPERATION	OR NAME OF OWNER							
5	Handy Har	man Tu	be Company					
EL PREVIOUS OPERAT	TOR(S) run mu recent A	-	y (PREVIOUS OPERATORS' PAI	RENT COMPANIES (#			
) NAME			02 D+8 MANAGER	10 NAME		11 0+8 NUMBER		
STREET ADDRESS (PO.	DAL AFD F. SEC	•	04 SIC COO€	12 STREET ADDRESS (P.O. Dec. AFO F.	one)	13 S/C CODE		
э стү		IOS STATE	07 ZIP COOE	14 C/TY	15 STATE	16 20 COOE		
			¥			.02 0002		
NO YEARS OF OPERATION	09 NAME OF OWNER	DURING THE	S PERIOD	-				
)1 NAME			02 D+8 MUMBER	10 NAME		11 D+8 NUMBER		
3 STREET ADDRESS (P.O. A	M. AFO F. DIE.)		TO A SIC CODE	12 STREET ADORESS (P.O. Box. AVD.)	oor)	13 SC COOE		
5 CITY	-	O6 STATE	07 20P CODE	14 CITY	15 STATE	16 DP CODE		
8 YEARS OF OPERATION	109 NAME OF OWNER	DURING THE	S PERIOD					
1 NAME			02 D+8 NUMBER	10 HAME		11 0+8 NUMBER		
				1				
STREET ADDRESS (PO &	M. RFD #. MC.)		04 SJC COD€	12 STREET ADDRESS (P.O. Box. AFD a	erc /	13 S/C CODE		
5 CITY		DE STATE	07 ZIP CODE	14 CTY	15 STATE	16 ZIP CODE		
				1				
A YEARS OF OPERATION	09 NAME OF OWNER	DURING THE	PERIOD	1				
V. SOURCES OF INFO	RMATION (Can and			I CONTIL				
				A Bleet				
DE DNREC	Hazardous W	aste f	iles, SMC M	artin Investigation	of Groundwa	ter		
	tion at Came							



	5	ENTIAL HAZA	I. IDENTIFICATION				
SEPA			SITE INSPEC	PECTION REPORT OTRANSPORTER INFORMATION OTRANSPORTER INFORMATION			
R. ON-SITE GENERATOR		-				_	
O1 NAME		02 0	+ B MJMBER				
03 STREET ADDRESS IP O BOX RIPO P. enc.)			04 SIC COOE	1			
05 CTY	06 STATE	07 2	LP COO€				
IIL OFF-SITE GENERATOR(S)		_					
O1 NAME		02 0	+B NUMBER	O1 NAME		02 0	+8 NUMBER
03 STREET ADDRESS IP C Box. RFD #, HC)			04 SIC COOE	03 STREET ADDRESS (P 0 Box, NOP. ore)			04 SIC COOE
05 CITY	D6 STATE	07 2	DP COOE	סג כתץ	Od STATE	07 2	DP CODE
O1 NAME		02 (O+8 NUMBER	O1 NAME		020	P38MUN 8 +0
03 STREET ADDRESS (P O Bos, AFO P. etc.)			04 SIC COD€	03 STREET ADORESS (P.O. Box, APD a. sec.)		1	04 SIC COOE
05 CITY	OO STATE	072	TA COOF	05 CITY	OG STATE	07 2	LP CODE
IV. TRANSPORTER(S)		1		1		1	
O1 NAME		02 (O+8 NUMBER	O1 NAME		02 0	O+ B NUMBER
03 STREET ADORESS IP 0 Box R/O# orc		_	04 SIC COOE	03 STREET ADDRESS (P O. Bos. AFD + ere)			04 SIC CODE
os cny	OS STATE	07	ZIP COOE	os city	OS STATE	07	ZIP CODE
O1 NAME		026	O+8 NUMBER	O1 NAME		02 (D+8 NUMBER
03 STREET ADDRESS (7 0 801 AFD 4, erc)			04 SIC CODE	03 STREET ADORESS IP O BOA. APD P. ONC.)		_	04 S/C CODE
OS CITY	O6 STATE	07.	ZIP COO€	оз слу	TOG STATE	07	ZIP CODE
V. SOURCES OF INFORMATION ،دن د							



	POTENTIAL HAZARDOUS WASTE SITE			
SEPA		PECTION REPORT RESPONSE ACTIVITIES		DE 115
L PAST RESPONSE ACTIVITIES		NEST STOR ASTRONO		
01 D A. WATER SUPPLY CLOSED		02 DATE	03 AGENCY	
04 DESCRIPTION				
N/A				
01 D B. TEMPORARY WATER SUPPLY PA	ROVIDED	D2 DATE	03 AGENCY	
N/A				
01 C. PERMANENT WATER SUPPLY PR	POVIDED	D2 DATE	03 AGENCY	
N/A				
01 & D. SPLLED MATERIAL REMOVED 04 DESCRIPTION		02 DATE 4/2/85	03 AGENCY	DE DNREC
began pumping of reco				
01 Ø E. CONTAMNATED SOIL REMOVED 04 DESCRIPTION		02 DATE 12/17/84	03 AGENCY	DE DNREC
soil treated by a so	oil shreader	商		
01 □ F. WASTE REPACKAGED	(02 DATE	03 AGENCY	
N/A				
01 G. WASTE DISPOSED ELSEWHERE 04 DESIGNATION		D2 DATE	03 AGENCY	
N/A				
01 A. ON SITE BUREAL	0	2 DATE	03 AGENCY	-
04 DESCRIPTION N/A				
01 C I. IN SITU CHEMICAL TREATMENT 04 DESCRIPTION	O	2 DATE	03 AGENCY	
N/A				
01 D J. IN SITU BIOLOGICAL TREATMENT	C	2 DATE	03 AGENCY	
04 DESCRIPTION N/A				
01 & K. IN SITU PHYSICAL TREATMENT		02 DATE 4/2/85	03 AGENCY	_DE_DNREC
04 DESCRIPTION		,,		
4/2/85pumping recover	y well 12/11/8	2 DATE	OPERATION	1
04 DESCRIPTION	•		oo nganor	
N/A 01 C M. EMERGENCY WASTE TREATMEN	7	02 DATE	03 AGENCY	
04 DESCRIPTION				
N/A		02 DATE	03 AGENCY	
01 D. N. CUTOFF WALLS 04 DESCRIPTION	•	Z UNIC		
N/A			00.1051.01	
01 0. EMERGENCY DIKING/SURFACE Y 04 DESCRIPTION	VATER DIVERSION C	DZ DATE	03 AGENCY	
N/A		22 DATE	03 40514011	
01 D.P. CUTOFF TRENCHES/SUMP 04 DESCRIPTION	(JZ VAIC	UJ AGENCY	
N/A				
01 0 O. SUBSURFACE CUTOFF WALL 04 DESCRIPTION	C	2 DATE	03 AGENCY	
N/A				

EPA FORM 2070-13 (7-81)



SEPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES

L DENTIFICATION

01 STATE 02 SITE MARKER

DE 115

PART 10 - PAST RESPONSE ACTIVITIES	22 110
02 DATE	03 AGENCY
02 DATE	03 AGENCY
02 DATE	03 AGENCY
02 DATE	03 AGENCY
02 DATE	03 AGENCY
· ·	
02 DATE	03 AGENCY
02 DATE	03 AGENCY
02 DATE	O3 AGENCY
02 DATE	03 AGENCY
02 DATE	03 AGENCY
02 DATE	03 AGENCY
O2 DATE	03 AGENCY
OF DAIL	W AGE TO 1
	02 DATE

N/A

IIL SOURCES OF INFORMATION (Can amortic relevances of state flat sample amortis reports)

DE DNREC Hazardous waste files



\$EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION

	IFICATION
OI STATE	OZ SITE NUMBER

IL ENFORCEMENT INFORM	ATION
-----------------------	-------

OI PAST REGULATORY/ENFORCEMENT ACTION [] YES (\$\overline{8}\) NO

02 DESCRIPTION OF FEDERAL STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

N/A